5000-5-20-'09

S. 2. A.

PRESENTED TO

The New York Academy of Medicine.

THE ANNA WOERISHOFFER
LIBRARY FUND

ESTABLISHED 1897

Virginia Medical Monthly

Official Organ of the Medical Society of Virginia

Index to Volume LI

136659

APRIL, 1924--MARCH, 1925

Inclusive

A. Wreschner

VIRGINIA MEDICAL MONTHLY

INDEX TO VOLUME LI

APRIL, 1924—MARCH, 1925, INCLUSIVE

INDEX OF CONTRIBUTORS

DR. ERNEST H. ALDERMAN, Williamsburg, Va. 348
DR. C. J. ANDREWS, Norfolk, Va. 148
DR. O. O. ASHWORTH, Richmond, Va. 227
DR. W. R. AYLETT, Newport News, Va. 117
DR. B. B. BAGBY, Richmond, Va. 700
DR. B. M. BAKER, Norfolk, Va. 280
DR. GREER BAUGHMAN, Richmond, Va. 28
DR. R. BENNETT BEAN, University, Va. 642
DR. HARRY BEAR, Richmond, Va. 429
DR. CHARLES Y. BIDGOOD, Richmond, Va. 634
DR. I. A. BIGGER, University, Va. 735
DR. PAUL BLACK, Spartanburg, S. C. 437
DR. SAMUEL ORR BLACK, Spartanburg, S. C. 437
DR. CHARLES MINOR BLACKFORD, Staunton, Va. 177, 245, 374
DR. WYNDHAM B. BLANTON, Richmond, Va. 265
DR. THOMAS R. BOGGS, Baltimore, Md. 270
DR. WILBUR M. BOWMAN, Petersburg, Va. 240
DR. JOHN O. BOYD, Roanoke, Va. 496
DR. P. W. BOYD, Winchester, Va. 599
DR. CHARLES E. BOWLES, Pulaski, Va. 702
DR. JOHN W. BRODNAX, Richmond, Va. 33
DR. ALEXANDER G. BROWN, Jr., Richmond, Va. 67, 789
DR. GRAFTON TYLER BROWN, Washington, D. C. 234
DR. ISRAEL BROWN, Norfolk, Va. 573
DR. ROBERT C. BRYAN, Richmond, Va. 284
DR. S. W. BUDD, Richmond, Va. 776
DR. A. A. BURKE, Norfolk, Va. 337
DR. HENRY P. CARR, Richmond, Va. 363
DR. S. BEVERLY CARY, Roanoke, Va. 212
DR. GEORGE A. CATON, New Bern, N. C. 111
DR. C. C. COLEMAN, Richmond, Va. 393
DR. PAUL C. COLONNA, New York, N. Y. 144
DR. CHARLES E. CONRAD, Harrisonburg, Va. 214
DR. NAT. H. COPENHAVER, Bristol, Tenn. 481
DR. CORA Z. CORPENING, Suffolk, Va. 108, 230
DR. J. KENNEDY CORSS, Newport News, Va. 81
DR. J. H. CROUCH, Williamsburg, Va. 354
DR. J. G. DAVIS, Jr., Christiansburg, Va. 139
DR. PAUL DAVIS, Roanoke, Va. 157
DR. T. DEWEY DAVIS, Richmond, Va. 154, 627
DR. J. BEVERLY DeSHAZO, Ridgeway, Va. 447
DR. JAMES ERWIN DIEHL, Norfolk, Va. 223
DR. FRANK M. DILLARD, Alexandria, Va. 499
DR. AUSTIN I. DODSON, Richmond, Va. 71, 674
DR. JAMES C. DOUGHTY, Onancock, Va. 92
DR. GILBERT FRANKLIN DOUGLAS, Birmingham, Ala. 299
DR. T. LATANE DRISCOLL, Richmond, Va. 233, 435, 556
DR. ROGER H. DuBOSE, Roanoke, Va. 155
DR. MEADE EDMUNDS, Petersburg, Va. 418
DR. J. MOREHEAD EMMETT, Clifton Forge, Va. 562
DR. E. T. GATEWOOD, Richmond, Va. 647
DR. JOHN J. GIESEN, Radford, Va., 164, 612
DR. S. G. GILL, Norfolk, Va. 431
DR. ALFRED GORDON, Philadelphia, Pa. 438, 782
DR. J. R. GORMAN, Lynchburg, Va. 232
DR. CHARLES R. GRANDY, Norfolk, Va. 83, 547
DR. K. D. GRAVES, Roanoke, Va. 133
DR. JAMES K. GRAY, Marion, Va. 159
DR. C. B. GREEAR, Honaker, Va. 282
DR. ST. GEO. T. GRINNAN, Richmond, Va. 423, 750
DR. JAS. K. HALL, Richmond, Va. 276
DR. FRANK HANCOCK, Norfolk, Va. 289
DR. STEPHEN HARNSBERGER, Warrenton, Va. 373, 651
DR. EDGAR C. HARPER, Richmond, Va. 768
DR. B. E. HARRELL, Norfolk, Va. 274
DR. D. L. HARRELL, Suffolk, Va. 166
DR. W. L. HARRIS, Norfolk, Va. 601
DR. FRANK HELVESTINE, Jr., University, Va. 88, 420, 747
DR. J. H. HIDEN, Pungoteague, Va., 15, 359
DR. ROY M. HOOVER, Roanoke, Va. 221
DR. EDMUND HORGAN, Washington, D. C. 399
DR. J. SHELTON HORSLEY, Richmond, Va. 71, 502, 762
DR. J. S. HORSLEY, Jr., Richmond, Va. 476
DR. C. P. HOWZE, University, Va. 550
DR. INDIA HUNT, University, Va. 426
DR. JAMES W. HUNTER, Norfolk, Va., 12, 644
DR. J. MORRISON HUTCHESON, Richmond, Va. 630
DR. W. P. JACKSON, Roanoke, Va. 7
DR. R. BRUCE JAMES, Danville, Va. 625
DR. F. S. JOHNS, Richmond, Va. 687
DR. BASIL B. JONES, Richmond, Va. 98
DR. CLARENCE PORTER JONES, Newport News, Va. 31, 773
DR. THOMAS D. JONES, Richmond, Va. 341, 711
DR. H. E. JORDAN, University, Va. 537
DR. BITTLE C. KEISTER, Washington, D. C. 468
DR. E. L. KENDIG, Victoria, Va. 146, 765
DR. LINWOOD D. KEYSER, Roanoke, Va. 446, 531
DR. GEO. T. KLIPSTEIN, Alexandria, Va. 357
DR. BERNARD H. KYLE, Lynchburg, Va. 785
DR. BURNLEY LANKFORD, Norfolk, Va. 49, 76, 491
DR. F. H. LEE, Richmond, Va. 403
DR. J. E. MARABLE, Newport News, Va. 151
DR. HARRY T. MARSHALL, University, Va. 35
DR. RICHARD MASON, The Plains, Va. 579
DR. HUNTER H. McGUIRE, Richmond, Va. 167
DR. HUNTER H. McGUIRE, Winchester, Va. 197
DR. STUART McGUIRE, Richmond, Va. 105, 697
DR. JOSEPH T. McKINNEY, Roanoke, Va. 566
DR. W. NELSON MERCER, Richmond, Va. 200
DR. JAMES M. MILLER, Crockett, Va. 780
DR. ALLEN H. MOORE, New Market, Va. 448
DR. S. B. MOORE, Alexandria, Va. 352
DR. J. COLEMAN MOTLEY, Abingdon, Va. 485
DR. H. B. MULHOLLAND, University, Va. 737
DR. THOMAS W. MURRELL, Richmond, Va. 559
DR. JOHN H. NEFF, University, Va. 683
DR. SAMUEL NEWMAN, Danville, Va. 39, 435
DR. J. B. NICHOLLS, Catawba Sanatorium, Va. 1
DR. J. A. NOBLIN, East Radford, Va. 161
DR. THOMAS E. OAST, Portsmouth, Va. 570
DR. C. P. OBENSCHAIN, New Hope, Va. 115
DR. A. J. OCHSNER, Chicago, Ill. 529
DR. DANIEL A. ORTH, Chicago, Ill. 667
DR. GEO. C. PAYNE, Richmond, Va. 363
DR. W. LOWNDES PEPLE, Richmond, Va. 42, 742
DR. H. W. PHILLIPS, Norfolk, Va. 344
DR. W. O. POINDEXTER, Newport News, Va. 488
DR. JOHN OSBORN POLAK, New York, N. Y. 461
DR. WILLIAM B. PORTER, Roanoke, Va. 595
DR. R. L. RAIFORD, Sedley, Va. 464
CASPER L. REDFIELD, Chicago, Ill. 366
DR. GEORGE H. REESE, Petersburg, Va. 112, 495
DR. W. H. RIBBLE, Wytheville, Va. 504
DR. I. C. RIGGIN, Richmond, Va. 451
DR. CHARLES R. ROBINS, Richmond, Va. 745
MISS GRACE BRYAN ROLLINS, Richmond, Va. 170, 369
DR. J. M. ROPP, Roanoke, Va. 101
DR. S. H. ROSENTHAL, Lynchburg, Va. 238
DR. LAWRENCE T. ROYSTER, University, Va. 693
DR. H. H. RUBIN, New York, N. Y. 241
DR. J. A. RUCKER, Bedford, Va. 580
DR. M. PIERCE RUCKER, Richmond, Va. 23
DR. G. REESE SATTERLEE, New York, N. Y. 334
DR. MILLARD B. SAVAGE, Norfolk, Va. 575
DR. WILLIAM A. SHEPHERD, Richmond, Va. 327
DR. JOSEPH SHOHAN, Greensboro, N. C. 302
DR. A. M. SHOWALTER, Christiansburg, Va. 553

DR. DUDLEY C. SMITH, University, Va. 557
DR. F. H. SMITH, Abingdon, Va. 134
DR. JAMES H. SMITH, Richmond, Va. 755
DR. PHILIP S. SMITH, Abingdon, Va. 408
DR. FRANK B. STAFFORD, Charlottesville, Va. 714
DR. BERNHARD STEINBERG, Boston, Mass. 327
DR. W. CALHOUN STIRLING, Washington, D. C. 679
DR. L. E. STUBBS, Newport News, Va. 18, 614
DR. DANIEL D. TALLEY, Richmond, Va. 413, 608
DR. D. T. TAYLOE, Jr., Washington, N. C. 208
DR. FREDERICK R. TAYLOR, High Point, N. C. 338
DR. G. B. TRIBLE, Washington, D. C. 294
DR. HUGH H. TROUT, Roanoke, Va. 142
DR. JOHN N. UPSHUR, Richmond, Va. 620
DR. T. S. USSERY, Norton, Va. 309
DR. DOUGLAS VANDERHOOF, Richmond, Va. 544
DR. WARREN T. VAUGHAN, Richmond, Va. 472
DR. RAYMOND A. VONDERLEHR, Richmond, Va. 309
DR. H. M. WALLACE, Greenville, Va. 365
DR. J. B. H. WARING, Blanchester, Ohio 235, 504
DR. LEIGH F. WATSON, Chicago, Ill. 500
DR. STEPHEN H. WATTS, University, Va. 602
DR. JOHN S. WEITZEL, Richmond, Va. 216
DR. THOMAS F. WHEELDON, Richmond, Va. 225
DR. CARRINGTON WILLIAMS, Richmond, Va. 86
DR. ENNION G. WILLIAMS, Richmond, Va. 448
DR. THOMAS V. WILLIAMSON, Norfolk, Va. 203, 329
DR. A. A. WILSON, Oxford, N. C. 443
DR. F. J. WRIGHT, Petersburg, Va. 416
DR. GEORGE A. WRIGHT, Abingdon, Va. 161
DR. CHAS. A. YOUNG, Roanoke, Va. 292

INDEX OF SUBJECTS

Italics Indicate Subjects of Original Communications

Abdomen, surgery of the upper, 81; Suggestions in palpating the —, 117; Myocardial disease and surgical conditions of the — 630
Abdominal operation, an analysis of 100 consecutive, 112; Diagnostics of some acute — conditions 108
Abduction treatment of fracture of neck of femur 785
Abrams' treatment again discredited, 376; Report of Scientific American — Investigation Committee 377
Abscess, epidural, with apparently no middle ear involvement, in case of mastoiditis 223
Acid milk, concentrated milk feeding, in young infants 750
Acidosis in children, chronic appendicitis as a cause of 105
Adenoids and tonsils, focal infections in the 418
Adenomata of the thyroid, treatment of 399
Adult disabled, the 225
Advertise, why professional men do not 429
Age, some therapeutic problems of old 270
Albuminuria in relation to disease of the tonsils 31
Allergic disease, the interaction of specific and nonspecific factors in 472
Anatomy, some remarks on the sectional method of studying and teaching macroscopic 33
Anemia, clinical conception of, 544; Report of a case of splenic — 67
Anesthesia in cystoscopy, a satisfactory technique for local, 446; Further observations on ethylene-oxygen —; a report of 450 cases, 476; Report of two cases of resection of stomach under local —, 502; Spinal — 667
Aneurism 573
Angina, treatment of Vincent's, 233; — — — —, with antimony potassium tartrate injected intravenously, 309; — *pectoris; relief of the pain by surgery* 315
Anthrax in the United States, with special reference to shaving brush infections, the incidence of human 265
Antimony potassium tartrate injected intravenously in case of Vincent's angina 309
Antitoxins, bacterial vaccines and glandular products with their practical indications 50
Appendicitis in children, treatment of, 280; Chronic — as a cause of acidosis in children 105
Appendix epiploica simulating an attack of acute appendicitis, 88; *X-ray examination of the —: its diagnostic value* 413
Argyria with report of two cases due to argyrol 154
Argyrol, argyria with report of two cases due to 154
Arsenic poisoning, antidote for, 584; — and bismuth medications in treatment of syphilis, 179; Report on intravenous use of — (arsphenamine) in certain septic conditions 755
Arsphenamine dermatitis; report of case treated with sodium thiosulphate, 274; Report on intravenous use of arsenic (—) in certain septic conditions 755
Asthma, interaction of specific and nonspecific factors in, 472; Case of pneumothorax occurring in bronchial — 167
Attributes of man, the origin and evolution of the: the soul as a world thought; man's spirit and the cosmic process 702
Autopsy service at University of Virginia Hospital, for the term 1923-4, review of the 426
Babies, new measuring board for 59
Backache, 221; — *of known and unknown origin* 282
Bacterial vaccines, antitoxins and glandular products with their practical indications 50
Banti's disease; report of a case 67
Bichloride of mercury intravenously in treatment of septic cases 625
Bile reaction in urine, a note in reference to the 240
Birth canal, pelvimetry of the 575
Bismuth medications and arsenic in treatment of syphilis, 179, 180; — — in treatment of syphilis, 310; Antidote for — poisoning 584
Bladder, the; its importance in gynecological diagnosis and treatment 299
Blindness, toxic; report of two cases 773
Blood pressure and guanidine compounds, comments on high, 381; Direct — stream infection from diseased tonsils, 520; Practical method of — vessel suture 765

Book Announcements

Abt—Pediatrics 123, 583, 722
Annual Reprint of Reports of Council on Pharmacy and Chemistry of A. M. A. 182
Arey—Developmental Anatomy 722
Bandler—Medical Gynecology 380
Bazin—Student's Guide to Operative Surgery 505
Beck—Applied Pathology in Diseases of the Nose, Throat and Ear 54
Bickham—Operative Surgery 54, 123, 252, 721
Bowers—Manual of Psychiatry 721
Bram—Goiter: Non-Surgical Types and Treatment 380
Buerger—The Circulatory Disturbances of the Extremities 123
Cabot—Differential Diagnosis 182
Child Health Library—Vols. I-X, inclusive 722
Clendening—Modern Methods of Treatment 252
Collected Papers of Mayo Clinic and the Mayo Foundation 253
Cotton—Dislocations and Joint Fractures 182

Davies—Socia Control of the Feebleminded---123
DeLee—The Principles and Practice of bstretrics----380
Dercum—The Biology of the Internal Secretions-54
Draper—Human Constitution----722
Eggleston—Essentials of Prescription Writing---721
Evans—Diseases of the Breast----252
Foxworthy—Life Insurance Examination----252
Gleason—A Manual of Diseases of the Nose, Throat and Ear----583
Head—Concealed Tuberculosis or "The Tired Sickness"----722
Hermann—Methods in Medicine----54
Hirst—A Manual of Obstretrics----722
International Clinics, Vols. 1-4, 1924-54, 314, 505, 722
Kerley—What Every Mother Should Know About Her Infants and Young Children----123
Kerley-Graves—The Practice of Pediatrics----721
MacCallum—A Text-Book of Pathology----722
Macleod-Banting—The Antidiabetic Functions of the Pancreas and the Successful Isolation of the Antidiabetic Hormone—Insulin----54
Mallory-Wright—Pathological Technique----182
May—Manual of Diseases of the Eye----380
Medical Record Visiting List----583
Moynihan—Two Lectures on Gastric and Duodenal Ulcer----252
Muirhead-Brodie—A Text-Book of Materia Medica for Nurses----722
National Health Series—Vols. 1-20-54, 123, 253, 450
New and Official Remedies, 1924----182
Norris-Landis—Diseases of the Chest and the Principles of Physical Diagnosis----253
Organotherapy in General Practice----450
Pearce-Macleod-Taylor—Fundamentals of Human Physiology----505
Ranson—Anatomy of the Nervous System----182
Reynolds-Macomber—Fertility and Sterility in Human Marriages----314
Rose—Eat Your Way to Health----314
Rose—Physical Diagnosis----722
Rubin—The New Science of Radiendocrinology in Its Realm of Rejuvenation----54
Salmon—Mind and Medicine----314
de Schweinitz—Diseases of the Eye----252
Thorek—The Human Testis----182
Trans. College of Physicians, Philadelphia----253
Vaquez-Laidlaw-Thayer—Diseases of the Heart-721
Walsh-Foote—Safeguarding Children's Nerves--722
Watson—Hernia----53
Webster—Anesthesia for Nurses----722
Ysander—Studies on the Morphology and Morphogenesis of Human Thoracopagic Monsters----722

Bronchial asthma, a case of pneumothorax occurring in---- 167
Bronchitis, subacute ---- 157
Brush infections, incidence of human anthrax in United States with special reference to shaving ---- 265
Burn, a modern treatment of esophageal stricture due to lye- 337
Calculi, urinary ---- 481
Cancer of the cervix, 230; *Diagnosis of — from the standpoint of the general practitioner*, 115; — of the penis ---- 550
Carcinoma of the penis, 550; *Some features regarding the clinical course and treatment of epidermoid — of the skin*---- 776
Catawba Sanatorium, report upon the 4,531 *tuberculous patients discharged from, up to January* 1, 1922 ---- 1
Cerebrospinal fluid, the ---- 723
Cervix, cancer of the---- 230
Characters and heredity, acquired 366
Child of four years, hypertrophic pyloric stenosis in---- 309
Childbirth, the minimum standard of care that should be accorded the woman in, 76; How can this woman best be treated in —?-- 148
Children, chronic appendicitis as a cause of acidosis in, 105; Malnutrition in school —, 214; Treatment of appendicitis in —, 280; Some reflections upon certain phases of preventive medicine in the growth and development of —, 359; Pulmonary tuberculosis in — of school age 547
Cider, poisoned from drinking--- 580
Cleft palate and harelip, treatment of ---- 393
Climacteric and menopause---- 620
Club-foot, the treatment for resistant congenital ---- 144
Colles' fracture with an unusual ctiology ---- 504

Colleges
Medical College of Virginia ---- 186
University of Virginia, Med. Dept.---- 257

Colon, diverticulitis of the---- 86
Coma, report of an interesting case of diabetic ---- 164
Compensation laws, harmonizing workmen's ---- 724
Confusional states simulating dementia praecox, chronic; differential diagnosis ---- 438
Constipation, some considerations of chronic ---- 151
Cosmic process, man's spirit and the ---- 702
Crime and medicine---- 723
Cystoscopy, a satisfactory technique for local anesthesia in---- 446
Deaths (see *Obituary Record.*)
Delivered, how can this woman best be? ---- 148
Dementia praecox, on the meaning of, 276; Chronic confusional states simulating — —; differential diagnosis ---- 438
"Dental" work, some approved, 183; — injury in radical surgery of the maxillary sinus---- 647
Dermatitis, arsphenamine; report of case treated with sodium thiosulphate ---- 274
Diabetes mellitus, 7; Treatment of — — with insulin in country practice, 92; *The symptoms and diagnosis of — —*, 134; *The Medical treatment of — —*, 139; *Surgical treatment of — —*, 142; *Treatment of — —; Review of a year's work at University of Va. Hospital* ---- 737
Diabetic coma, report of an interesting case of---- 164
Diagnostics of some acute abdominal conditions ---- 108
Dick test and scarlet fever---- 382
Digitalis, the therapeutic use of, 452; Massive doses of — in pneumonia ---- 327
Diphtheria, conquering, 155; Preliminary report on use of Schick test and three separate doses of toxin-antitoxin mixture in children with, 365; Toxin-antitoxin for — prevention, 451; *A plea for a more general use of — toxin-antitoxin in infants and children* ---- 711
Disabled, the adult ---- 225
Displacements of the uterus, traumatic ---- 101
Diverticulitis of the colon---- 86
Drugs amid changing standards, the standardization of---- 584
Duodenal ulcers, treatment of---- 697
Ear involvement, case of mastoiditis, epidural abscess, with apparently no middle ---- 223
Eastern State Hospital, epidemic of pneumococcic infection at the 348
Ectopic pregnancy, 344; — —; *An analysis of* 95 *cases*---- 747
Electro-coagulation methods in the treatment of hemorrhoids; a simple, bloodless, ambulant technique ---- 235
Encephalitis ---- 658
Endocarditis, comments on---- 124
Endocrine radiation as a means of improving the quality and power of the singing voice ---- 241
Endocrinology; its relation to internal medicine, 595; — — — — *general surgery*, 599; — — — — *pediatrics*, 601; — — — — *gynecology*, 602; — — — — *radiology*, 608; — — — — *neurology and psychiatry*, 612; — — — — *therapeutics*, 614; *Some observations on the study of* — 15
Epidemic of pneumococcic infection at Eastern State Hospital- 348
Epidemiological studies of typhoid fever in Virginia during 1923-- 363
Epidermoid carcinomas of the skin, some features regarding the clinical course and treatment of ---- 776
Epiploic appendages simulating an attack of acute appendicitis, torsion of ---- 88
Equinovarus, treatment of resistant congenital ---- 144
Esophageal stricture due to lye burn, a modern treatment of--- 337
Ethylene-oxygen anesthesia, further observations on; a report of 450 *cases* ---- 476
Examination on patients, the question of the ---- 791
Exophthalmic goitre, Lugol's solution of iodine in treatment of-- 735
Eye factor in headaches ---- 499
Fake promoters, why are so many physicians such easy marks for? 780
Feeding, use of lactic acid milk in infant, 341; Concentrated milk — (acid milk) in young infants 750
Female pelvis, some comments on surgery of the ---- 553
Femur, the abduction treatment of fracture of the neck of the---- 785
Fever in Virginia during 1923, epidemiological studies of typhoid, 363; The Dick test and scarlet — ---- 382

Fibroid tumors: their development and how they produce symptoms: their effect on pregnancy and labor: treatment ---- 461
Fissures and hemorrhoids, gastro-intestinal and other disturbances associated with---- 334
Focal infection in the tonsils and adenoids, 418; *Report of two cases of* — — ---- 357
Foot, the treatment for resistant, congenital club ---- 144
Fracture, treatment of recent, 485; Colles' — with unusual etiology, 504; Abduction, treatment of — of neck of femur ---- 785
Frontal sinus, osteoma of the, with report of a case---- 403
Gall-bladder: its past, present and future ---- 117
Ganglia, tendon; report of an unusual case ---- 146
Gastric diagnosis, 111; Perforating — ulcer, with report of cases ---- 352
Gastro-enterostomy in retrospect-- 81
Gastro-intestinal and other disturbances associated with fissures and hemorrhoids ---- 334
Gentian violet and mercurochrome in treatment of septicemia and other infections, intravenous injection of ---- 452
Germicides employed in the male urethra, a survey of some of the principal ---- 329
Glandular products, antitoxins and bacterial vaccines with their practical indications ---- 50
Goiter, some practical considerations of, 408; *A clinical consideration of the various types of* — 531; Lugol's solution of iodine in treatment of exophthalmic — ---- 735
Gonococcus simulated by variants of the staphylococcus and streptococcus in chronic urological infections ---- 203
Grippe, summer ---- 448
Guanidine compounds, comments on high blood pressure and---- 381
Gynecological diagnosis and treatment, importance of the bladder in, 299; Radium in treatment of certain non-malignant — conditions ---- 742
Gynecology, relation of endocrinology to ---- 602
Harelip with special reference to the associated deformity of the nose, the treatment of unilateral ---- 393
Hayfever, interaction of specific and nonspecific factors in---- 472
Headaches, the ocular factor in-- 499
Health examination, organization of county medical societies for promoting periodic, 50; Public —, practitioners and universities, 35; Virginia League for — education and medical progress 55
Heart disease, significance of murmurs in the diagnosis and prognosis of, 18; *Prevent — trouble*- 792
Hemorrhage, radium therapy in uterine, 562; Intracranial — in new born ---- 496
Hemorrhagic disease of the new born ---- 693
Hemorrhoids, gastro-intestinal and other disturbances associated with fissures and, 334; *Electrocoagulation methods in the treatment of —; a simple, bloodless, ambulant technique*---- 235
Heredity, acquired characters and 366
Hernia, inguinal, 208; Jack-knife position after — operation, 377; Treatment of — — in infants and young children ---- 500
Hodgkin's disease; report of a case ---- 443
Human anthrax in the U. S., with special reference to shaving brush infections, the incidence of ---- 265
Hydronephrosis, some remarks on unilateral ---- 683
Hyperemesis gravidarum ---- 161
Hypertrophic pyloric stenosis in a child four years of age---- 309
Hypospadias, treatment of: analysis of 28 cases---- 634
Imbecile, some anatomical characters of the ---- 642
Infant feeding, use of lactic acid milk in, 341; *Concentrated milk feeding (acid milk) in young* — 750
Infants, some new points in the nutritional care of premature, 39; Malnutrition and marasmus in —, 216; Spasmophilia in —, 423; Therapeusis by intraperitoneal injections in — ---- 570
Infection, the significance of, 166; Epidemic of penumococcic — at Eastern State Hospital, 348; Report of two cases of focal —, 357; *Direct blood stream — from diseased tonsils*, 520; Kidney — ---- 679
Infections of the kidney, etiology, diagnosis and medical treatment of pyogenic, 416; Focal — in tonsils and adenoids, 418; Incidence of diseases of lower air passages secondary to — — — upper respiratory tract ---- 627
Influenza, a new type of---- 373
Inguinal hernia, 208; *Treatment of — — in infants and young children* ---- 500
Injections in infancy, therapeusis by intraperitoneal ---- 570
Insulin in country practice---- 92
Intoxication, chronic, with valerian, nervous and mental manifestation following ---- 782
Intracranial hemorrhage in the new born ---- 496
Intraperitoneal injections in infancy, therapeusis by---- 570
Intravenous use of arsenic (arsphenamine) in certain septic conditions, report on ---- 755
Intussusception, 420; *Report of an unusual case of* — ---- 42
Iodine in treatment of exophthalmic goitre, Lugol's solution of-- 735
Jack-knife position after hernia operation ---- 377
Kidney function, determination of, 239; *Etiology, diagnosis and medical treatment of pyogenic infections of the —*, 416;; — *infection* ---- 679
Labor, how can this woman be treated in? 148; Effect of fibroid tumors on — ---- 461
Lactic acid milk in infant feeding, the use of ---- 341
Laparotomies for pelvic disease in women; report of 107 consecutive cases ---- 495
Laryngeal stenosis, report of case of unusual and complete ---- 232
Licensure, medical, proposed Richmond city ordinance for---- 45
Light, ultra-violet: its place in space and therapeutics---- 289
Literature, obstetrics in ---- 23
Lithiasis, urinary ---- 481
Lobar pneumonia, spontaneous pyopneumothorax complicating a case of ---- 98
Lugol's solution of iodine in treatment of exophthalmic goitre---- 735
Lye burn, a modern treatment of esophageal stricture due to---- 337
Mackenzie, Sir James, Notes on life and work of---- 789
Malaria control, some practical points in ---- 354
Male urethra, survey of principal germicides employed in the---- 329
Malnutrition in school children, 214; — and marasmus in infants ---- 216
Man, origin and evolution of attributes of: spirit and cosmic process of — ---- 702
Marasmus and malnutrition in infants ---- 216
Mastoiditis, report of a case: epidural abscess with apparently no middle ear involvement---- 223
Maxillary sinus, radical surgery of the; study of 26 post-operative cases with special reference to dental injury ---- 647
Mediastinum, diagnosis of diseases of the ---- 520
Medical licensure, proposed Richmond city ordinance for, 45; Va. League for health education and — progress, 55; *Organization of County — societies for promotin periodic — examinations*---- 56
Medicine and crime, 723; *The shame of modern —: getting our post-graduate education in pharmacology and therapeutics from propaganda of proprietary drug houses. A plea for a more general study of the funda-*

mental principles of these sciences by members of the medical profession, 338; Some reflections upon certain phases of preventive — in growth and development of childhood, 359; Endocrinology: its relation to general —, 595; The place of chronic sepsis in —, 464; Some things for the consideration of the general practitioner of —— 468
Medico-legal problems of the railroad surgeon ——— 101
Menopause and climacteric——— 620
Mental and nervous manifestations following chronic intoxication with valerian ——— 782
Mentally crippled, what about the? 184
Mercurochrome and gential violet in treatment of septicemia and other infections, intravenous injection of ——— 452
Mercury poisoning, antidote for, 584; *Report of septic cases treated with bichloride of — intravenously* ——— 625
Microscopy, some observations concerning slit-lamp ——— 197
Milk injections in treatment of general paralysis, 585; Lactic acid — in infant feeding, 341; Concentrated — feeding (acid —) in young infants——— 750
Mongolian imbecile, some anatomical characters of the——— 642
Murmurs in the diagnosis and prognosis of heart disease, the significance of ——— 18
Myocardial disease and surgical conditions of the abdomen——— 630
Nauseau in pregnant women, physiological ——— 161
Nervous system, can changes in the central, be demonstrated in early stages in patients with positive spinal fluid reactions by chemical methods? 118; — and mental manifestations following chronic intoxication with valerian ——— 782
Neurology, relation of endocrinology to ——— 612
Neurosyphilis in the aged, 118; Discussion of treatment of —— 242
Neurovascular syphilis: case report with remarks ——— 559
Newborn, intracranial hemorrhage in the, 496; Hemorrhagic disease of the — ——— 693
Nose, treatment of unilateral harelip with special reference to associated deformity of the——— 393
Nutritional care of premature infants, some new points in the—— 39

Obituary Record

Dr. Hermann Boerhaave Anderson ——— 594
Dr. Henry M. Argabright ——— 392
Dr. Isaac Norval Baker ——— 666
Dr. Edward Bancroft ——— 132
Dr. Charles Holdsworth Barlow ——— 391
Dr. Charles Minor Blackford, II.——— 594
Mrs. George W. Brown ——— 326
Dr. Randolph Bryan Carmichael ——— 392
Dr. John B. Coakley ——— 264
Dr. Robert French Compton ——— 666
Dr. Luther Carroll Corbin ——— 460
Dr. George Russell Cottingham ——— 391
Dr. James White Cummings ——— 326
Dr. James Waddy Davis ——— 392
Dr. Joseph Thomas Davis ——— 460
Dr. Duncan Lee Despard ——— 392
Dr. John Byvancke Dickinson ——— 666
Dr. Stephen W. Fielder ——— 528
Dr. Howard Fletcher ——— 802
Dr. Branch Tucker Fields ——— 594
Dr. Edward Willis Finch ——— 66
Dr. Lewis Beale Firey ——— 734
Dr. Nelson Winslow Francis ——— 734
Dr. B. F. Fulks ——— 460
Dr. John Timothy Geraghty ——— 392
Dr. William S. Gordon ———131, 196
Dr. Peter Arthur Haley ——— 132
Dr. George Archer Hankins ——— 802
Dr. Edward Alexander Hatton ——— 132
Dr. Samuel Wilson Hobson ——— 391
Dr. Theodore Hough ——— 594
Dr. Alvah Stoakley Hudson ——— 326
Dr. John Hunter ——— 734
Dr. Henry Harrison Jones ——— 195
Dr. James H. Jones ——— 326
Dr. John Ramsey Littlefield ——— 196
Dr. Robert Williamson Lovett ——— 326
Sir James Mackenzie ——— 734
Dr. Edward May Magruder ——— 733
Dr. Hugh Benjamin Mahood ——— 132
Dr. Henry Bayley Melvin ——— 66
Dr. Edgar Ackley Moore ——— 528
Dr. Robert Emmett Moore ——— 528
Dr. Julian Edward Moseley ——— 131
Dr. Julian A. Norfleet ——— 802
Dr. William C. Nunn ——— 391
Col. William Otway Owen ——— 734
Dr. James J. Phillips ——— 132
Dr. Louis Julien Picot ——— 392
Dr. Robert Llewellyn Powell ——— 196
Dr. Albert Sidney Priddy ——— 734
Dr. John Peebles Proctor ——— 132
Dr. John F. Ragland, Jr. ——— 802
Dr. John Marvin Ratliff ——— 66
Dr. James Terrell Redd ——— 666
Dr. James Adolphus Rice ——— 594
Dr. John Bingham Roberts ——— 594
Dr. Charles Allen Saunders ——— 734
Dr. Samuel S. Simpson ——— 264
Dr. Bertram Welton Sippy ——— 392
Dr. Edmond Souchon ——— 392
Mrs. Mary Kemper Spencer ——— 392
Dr. Richard Henry Stuart ——— 392
Dr. Richard Henry Stuart, Jr. ——— 326
Dr. Charles James Terrell ——— 802
Dr. Allen Granberry Thurman ——— 734
Prof. Friedrich Trendelenburg ——— 734
Dr. John Nottingham Upshur ——— 665
Dr. Robert Allen White ——— 196
Dr. Nicholas J. Worthington ——— 666

Obstetrics in literature, 23; *Better —: how such may be obtained* ——— 491
Ocular factor in headaches ——— 499
Old age, some therapeutic problems of ——— 270
Osteoma of the frontal sinus with report of a case——— 403
Outlet and its pelvimetry, the——— 575
Palate, treatment of harelip and cleft ——— 393
Palpating the abdomen, suggestions in ——— 117
Pancreas, physiology and pathology of the ——— 133
Paraffinoma of the vas deferens—— 377
Paralysis, milk injections in treatment of general, 585; Specific and non-specific treatment of general ——— 586
Patients, the question of examination of ——— 791
Pediatrics, relation of endocrinology to ——— 601
Pelvic disease in women, report of 107 consecutive laparotomies for ——— 495
Pelvis, some comments on surgery of the female ——— 553
Pelvimetry, the outlet and its——— 575
Penis, carcinoma of the ——— 550
Perforating gastric ulcer with report of cases ——— 352
Perineum, the function of the, and its restoration when injured ——— 745
Pharmacology and therapeutics from the propaganda of the proprietary drug houses, getting our post-graduate education in— 338
Physicians easy marks for fake promoters, why are so many?—— 780
Pneumococcic infection at Eastern State Hospital, an epidemic of— 348
Pneumonia: its treatment, 161; Spontaneous pyopneumothorax complicating case of lobar —, 98; *Massive doses of digitalis in* — ——— 327
Pneumonias, the: their etiology and differentiation ——— 83
Pneumothorax occurring in bronchial asthma, a case of——— 167
Poisoning from drinking cider, 580; Antidote for arsenic, bismuth and mercury — ——— ——— 584
Post-graduate education in pharmacology and therapeutics from propaganda of proprietary drug houses: the shame of modern medicine ——— 338
Practitioner, some things for the consideration of the general, 468; Public health, — and universities ——— 35
Praecox, dementia, on the meaning of, 276; Chronic confusional states simulating — —: differential diagnosis ——— 438
Pregnancy, ectopic, 344; Treatment of toxemias of —, 28; Vomiting of —, 161; Pyelitis of —, 212; Effect of fibroid tumors on —, 461; — —: an analysis of 95 cases ——— 747
Premature infants, some new points in nutritional care of——— 39
Preventive medicine in growth and development of childhood, some reflections upon certain phases of ——— 359
Professional men do not advertise, why ——— 429
Prostatectomy: report of 25 operations with one death——— 71
Psoriasis: case report ——— 234
Psychiatry, relation of endocrinology to ——— 612
Psychoanalysis: a criticism and evaluation ——— 368
Psychotherapy ——— 170
Public health, practitioners and universities ——— 35
Puerperal sepsis, blocking, 651; *The minimum standard of care that should be accorded the — woman* ——— 76

Pulmonary tuberculosis in children of school age, 547; Report upon 4,531 patients with — — discharged from Catawba Sanatorium to January 1, 1922, 1; *The — tuberculous patient as a surgical risk*, 227; *The surgical treatment of unilateral — —*, 529; *Surgical treatment of — —*, 687; *Some clinical manifestations of — —* 714
Pyelitis of pregnancy, 212; *The treatment of —* 284
Pyloric stenosis, hypertrophic, in child 4 years of age 309
Pyogenic infections of kidney; etiology, diagnosis and medical treatment 416
Pyopneumothorax complicating case of lobar pneumonia, spontaneous 98
Quacks, protecting public from irregulars and, 49; Protection against — 183
Radiatiob, endocrine, as means of improving quality and power of singing voice 241
Radiological treatment of disease 12
Radiology, relation of endocrinology to 608
Radium, X-ray and surgery, 437; *— therapy in uterine hemorrhage*, 562; *— in treatment of certain non-malignant gynecological conditions*, 742; — in treatment of epidermoid carcinomas of skin 776
Reaction in urine, note in reference to the bile 240
Registration of certificate to practice medicine 794
Resection of stomach under local anesthesia 502
Respiratory tract, incidence of diseases of the lower air passages secondary to infections in the upper 627
Richmond City, ordinance, the proposed, 45; Status of tuberculosis in —, Va., for year 1923 200
Rickets, the photoactivity of substances curative of 584
Roentgen rays in urology, the 644
Rural districts, a cheap, permanent, sanitary toilet for 700
Scarlet fever, the Dick test and 382
Schick test on 1,482 children and the immunization of 1,011 children by three separate doses of toxine-antitoxine mixture (1 c.c. lethal dose), preliminary report on use of the 365
School children, malnutrition in 214
Sectional method of studying and teaching macroscopic anatomy, some remarks on 33
Sepsis in the future of medicine, the place of chronic, 464; Blocking of puerperal — 651
Septic cases treated with bichloride of mercury intravenously, 625; *Report on intravenous use of arsenic (arsphenamine) in certain — conditions* 755
Septicemia and other infections, intravenous injection of mercurochrome and gentian violet in 452
Shaving brush infections, incidence of human anthrax in U. S., with special reference to 265
Silver poisoning due to argyrol 154
Sinus, osteoma of the frontal; report of case, 403; Radical surgery of the maxillary —: study of 26-post operative cases with special reference to dental injury 647
Sinusitis from the standpoint of the general practitioner 294
Skin, tuberculosis of the; report of case, 159; Some clinical features regarding the clinical course and treatment of epidermoid carcinomas of — 776
Slit-lamp microscopy, some observations concerning 197

Societies, Boards, etc.

Accomac Co. Med. So. 580
Alexandria Med. Society 249
Alleghany-Bath Co. Med. Society 454
Amelia Co. Med. Society 517
Amer. Assn. for Study of Goiter 798
Amer. Gastro-Enterol. Assn. 193
Amer. Gynec. Society 260
Amer. Laryng., Rhinol. and Otolog. Society 264
Amer. Medical Assn. 250
Amer. Pediatric Society 325
Amer. Proctologic Society 389
Amer. Surgical Assn. 131
Arlington Co. Med. Society 580
Assn. Amer. Physicians 193
Assn. Surg. C. & O. Ry. 589
Assn. Surg. N. & W. Ry. 460
Assn. Surg. S. A. L. Ry. 660
Assn. Surgeons Southern Ry. 259
Augusta Co. Med. Assn. 794
Bedford Co. Med. Society 324
Botetourt Co. Med. Society 794
Church Hill Med. Society 661
Clin. Cong., Amer. Col. Surg. 523
Conf. Secretaries, State Med. Assn. 587
Danville Academy Medicine 653
Dinwiddie Co. Med. Society 718
Floyd Co. Med. Society 378
Grad. Nurses' Assn. of Va. 190
Hanover Co. Med. Society 378
Hanover Bd. of Health 727
Lee Co. Med. Soc. 119
Loudon Co. Med. Soc. 378
Louisa Co. Med. Soc. 517
Lynchburg and Campbell Co. Med. Soc. 718
Med. Assn. Valley of Va. 517
Med. Soc. of D. C. 604
Med. Soc. State of N. C. 127
Med. Soc. of Va. 506, 522, 724, 733
Med. Soc. Va., Md. and D. C. 179
National T. B. Assn. 193
Nelson Co. Med. Soc. 378
Norfolk Co. Med. Soc. 178, 718, 725
Northern Neck Med. Soc. 517
Patrick-Henry Med. Soc. 454
Physicians of Brunswick Co. 325
Piedmont (Va.) Med. Soc. 178
Powhatan Co. Med. Soc. 249
Public Health Assn. of Va. 120, 797
Richmond Acad. Med. 653
Richmond Chap. M. C. V. Alumni 527
Richmond Pediat. Soc. 60
Rchd. Soc. Ophthal. & Oto-Laryng. 654
Roanoke Acad. of Med. 517
Russell Co. Med. Soc. 119, 718
S. C. Med. Assn. 130
Seaboard Med. Assn. of Va. & N. C. 653
Soc. Neurological Surg. 593
Southern Med. Assn. 588
Sou. Pub. Health Lab. Assn. 130
Sou. Sec. Laryng., Rhinol. & Otolog. Soc. 730
Southern Surg. Assn. 659
South Piedmont Med. Soc. 119
Southside Va. Med. Assn. 249, 653
Southwestern Va. Med. Soc. 119
Surry Co. Med. Soc. 249
Sussex Co. Med. Soc. 517
Tri-State Med. Assn. of Carolinas & Va. 800
Va. Soc. Otolaryng. & Ophthal. 119
Va. State Brd. Health 319
Va. State Bd. Med. Exam. 317, 717
Va. State Dental Assn. 127
Va. T. B. Assn. 728
Va. Pharmaceutical Assn. 320
Va. Reg. Pharm. Assn. 527
Va.-W. Va. Sec., Clin. Cong. Amer. Col. of Surg. 126
Walter Reed Med. Assn. 179
Warren-Rappahannock-Page Co. Med. Soc. 119, 378
W. Va. State Med. Assn. 192
Wise Co. Med. Society 794
Women's Auxiliary, Med. Soc. Va. 516

Sodium thiosulphate in treatment of case of arsphenamine dermatitis 274
Soul as a word thought 702
Spasmophilia in infants 423
Spinal anesthesia 667
Spirit as a cosmic process, man's 702
Spleen, the significance of the, in the light of embryological, evolutionary, and experimental data 537
Splenic anemia, report of case of 67
Splenomegaly with anemia, report of a case of primary 67
Squint, etiology and treatment of: results of some operative cases 292
Staphylococcus and streptococcus, variants of the, simulating the gonococcus in chronic urological infections 203
Staunton is a place of interest to visitors, 177; *Points of professional interest to be seen in —*, 245; *Attractions offered by — to the visitor*, 374; *No reduced road rates to —* 447
Stenosis, case of unusual and complete laryngeal, 232; Hypertrophic pyloric — in child 4 years of age 309
Stomach generalizing, some, 111; *Report of two cases of resection of — under local anesthesia* 502
Streptococcus and staphylococcus, variants of the, simulating the gonococcus in chronic urological infections 203
Stricture due to lye burn, modern treatment of esophageal 337
Suicide with strange effect on skull, report of a case, 504; *The question of —* 791
Summer grippe 448
Sunshine, bottled 584
Surgery, radium and X-ray, 437; Some comments on — of the female pelvis, 553; Relation of endocrinology to general —, 599; Radical — of maxillary sinus with reference to dental injury 647

Surgical treatment of unilateral pulmonary tuberculosis, 529; — — — pulmonary tuberculosis, 687; The pulmonary tuberculous patient as a — risk ---- 227
Suture, a practical method of blood vessel ---- 765
Syphilis, intestinal manifestations of, 50; Hepatic —, 51; General review of new arsenical and bismuthic medications in —, 179, 180; *Comment on* —, 254; Treatment of — with bismuth, 310; —; *a preventable infection*, 557; *Neurovascular —; case report with remarks*, 559; Modern Therapy of —, 585; Transmission of congenital —, 586; Bravais-Jacksonian —; epilepsy quickly suppressed by treatment ---- 587
Syphilitics, a study of three hundred ---- 435
Syphilology, ideas in ---- 556
Tendon ganglia with report of an unusual case ---- 146
Therapeusis by intraperitoneal injections in infancy---- 570
Therapeutic problems of old age, some ---- 270
Therapeutics and pharmacology from propaganda of proprietary drug houses, getting our postgraduate education in, 338; Relation of endocrinology to — -- 614
Thrust: report of an usual case-- 435
Thyroid, treatment of adenomata of the, 399; *A review of operations on the — at St. Elizabeth's Hospital, Richmond, Va., for year ending October* 10, 1924---- 762
Toilet for rural districts, a cheap, permanent, sanitary ---- 700
Tonsils, the radiological treatment of diseased, 12; Direct blood stream infection from diseased —, 520; *Albuminuria in relation to disease of the* —, 31; *Focal infections in the — and adenoids* ---- 418
Torsion of an appendix epiploica simulating an attack of acute appendicitis ---- 88
Toxemias of pregnancy, the treatment of the ---- 28
Toxic blindness: report of two cases ---- 773
Toxin-antitoxin for diphtheria prevention, 451; Plea for a more general use of diphtheria — — in infants and children---- 711
Tryparsamide ---- 451
Tuberculosis, pulmonary, in children of school age, 547; The surgical treatment of unilateral — —, 529; The surgical treatment of — —, 687; Some clinical manifestations of — —, 714; — *of the skin; report of case*, 159; *Status of — in Richmond, Va., for the year* 1923, 200; *Observation in — clinic work*-- 768
Tuberculous patients discharged from Catawba Sanatorium up to January 1, 1922, report upon the 4,531, 1; Pulmonary — — as surgical risks ---- 227
Tumors, fibroid: their development and how they produce symptoms: their effect on pregnancy and labor: treatment---- 461
Typhoid perforation with recovery, a case of, 579; *Epidemiological studies of — fever in Virginia during* 1923 ---- 363
Ulcer, treatment of duodenal, 697; Perforating gastric — with report of cases ---- 352
Ultra-violet light: its place in space and therapeutics---- 289
Universities, public health and practitioners ---- 35
Upshur, Dr. John Nottingham---- 657
Urethra, survey of some of the principal germicides employed in the male ---- 329
Urine, note in reference to bile reaction in ---- 240
Urinary lithiasis, 481; *X-ray examination of the — tract*---- 566
Urination, frequency of ---- 674
Urological infections, variants of the staphylococcus and streptococcus simulating the gonococcus in chronic, 203; *The significance of some early — lesions*- 488
Urology, the Roentgen rays in---- 644
Uterine hemorrhage, radium therapy in ---- 562
Uterus, traumatic displacements of the ---- 101
Valerian, nervous and mental manfestations following chronic intoxication with ---- 782
Vas deferens, paraffinoma of the-- 377
Vaccines, bacterial, antitoxins and glandular products with their practical indications ---- 50
Venereal disease treatment, some aspects of ---- 431
Virginia League for health education and medical progress ---- 55
Vincent's angina, treatment of, 233; — — — — with antimony potassium tartrate injected intravenously ---- 309
Violet light, ultra: its place in space and therapeutics ---- 289
Vomiting of pregnancy---- 161
Voice, endocrine radiation as a means of improving the quality and power of the singing---- 241
Wassermann tests in 1,000 nervous and mental cases, routine, 118; — reaction in different social classes ---- 586
"West Law" for physical inspection of school children, explanation of the ---- 448
Whooping cough ---- 176
Woman best be delivered, how can this? ---- 148
Workmen's compensation laws, harmonizing ---- 724
X-ray examination of the appendix; its diagnostic value, 413; Radium, — and surgery, 437; — — — — urinary tract---- 566
X-rays and their therapeutic application, 302; The — in urology 644

APR 1 - 1925

Virginia Medical Monthly

OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

Fifty-fifth Annual Meeting, Staunton, October 14-17, 1924.

Vol. 51, No. 1.
WHOLE No. 862.

RICHMOND, VA., APRIL, 1924

$2.00 A YEAR
20 CENTS A COPY

CONTENTS.

ORIGINAL COMMUNICATIONS:

Report Upon the Four Thousand Five Hundred and Thirty-one Patients Discharged from Catawba Sanatorium up to January 1, 1922. J. B. Nicholls, M. D., Catawba Sanatorium, Va. ---- 1

Diabetes Mellitus. W. P. Jackson, M. D., Roanoke, Va. 7

The Radiological Treatment of Diseased Tonsils. James W. Hunter, Jr., M. A., M. D., Norfolk, Va. ---- 12

Some Observations in the Study of Endocrinology. J. H. Hiden, M. D., Pungoteague, Va. ---- 15

The Significance of Murmurs in the Diagnosis and Prognosis of Heart Disease. L. E. Stubbs, A. B., M. D., Newport News, Va. ---- 18

Obstetrics in Literature. M. Pierce Rucker, M. D., Richmond, Va. ---- 23

The Treatment of the Toxemias of Pregnancy. Greer Baughman, M. D., F. A. C. S., Richmond, Va. ---- 28

Albuminuria in Relation to Disease of the Tonsils. Clarence Porter Jones, M. D., F. A. C. S., Newport News, Va. ---- 31

Some Remarks on the Sectional Method of Studying and Teaching Macroscopic Anatomy. John W. Brodnax, Ph. G., M. D., Richmond, Va. ---- 33

Public Health, Practitioners and Universities. Harry T. Marshall, A. B., M. D., University, Va. ---- 35

Some New Points in the Nutritional Care of Premature Infants. Samuel Newman, M. D., Danville, Va. ---- 39

Intussusception: Report of an Unusual Case. W. Lowndes Peple, M. D., Richmond, Va. ---- 42

MISCELLANEOUS ---- 45

CORRESPONDENCE ---- 49

ANALYSES, SELECTIONS, ETC. ---- 50

THE TRUTH ABOUT MEDICINE ---- 52

BOOK ANNOUNCEMENTS ---- 53

EDITORIAL ---- 55

NEWS NOTES ---- 59

OBITUARY ---- 66

INDEX OF ADVERTISERS—Advertising Page 5.

CALCREOSE

TABLETS
POWDER
SOLUTION

Creosote in Tuberculosis

"It is again coming into favor. There seems to be no doubt but that it has a very definite effect in reducing expectoration and in lessening purulency. As a certain amount of the drug is excreted by the bronchial mucous membrane, this may explain, in part, its beneficial effects." —John Guy: Pulmonary Tuberculosis; Its Diagnosis and Treatment, 1923, p. 252.

CALCREOSE (calcium creosotate) is a mixture of approximately equal parts of beechwood creosote and calcium. It possesses the pharmacologic activity of creosote, but, apparently, does not cause the gastro-intestinal disturbances to which patients object. Therefore CALCREOSE can be administered for comparatively long periods of time in large doses.

Sample of Tablets on request

THE MALTBIE CHEMICAL COMPANY
Newark, New Jersey

MEAD'S

BETTER BABIES

SIMPLIFIED INFANT FEEDING

First Thought-

BREAST MILK

No system of feeding so simple and satisfactory as *breast nursing* the infant has ever been devised.

Every infant should have an opportunity to obtain Breast Milk, hence our sincere efforts to furnish ways and means of prolonging lactation in the mother, without the use of drugs or concoctions, are fully described in our pamphlet entitled

"BREAST FEEDING AND THE RE-ESTABLISHMENT OF BREAST MILK"

ARTIFICIAL FEEDING

The value of Mead's Dextri-Maltose in average babies is many times multiplied by the confidence of physicians who prescribe it in their infant feeding milk modifications. Mead's Dextri-Maltose represents an ethical ideal. Moreover, the combination of Mead's Dextri-Maltose, fresh cow's milk and water gives gratifying results.

DIARRHOEAS IN BREAST FED AND BOTTLE FED BABIES respond to a diet of Mead's Casec or Mead's Powdered Protein Milk.

EVERY INFANT, whether breast fed or bottle fed, should receive the protective antirachitic value of Mead's P & C Cod-Liver Oil.

The infant diet materials advertised here, when used by the physician, will meet the nutritional requirements of a large number of well and sick babies.

Please tear out this coupon and send for the following:

1. Pamphlet on Breast Feeding.
2. Sample and literature on Mead's Dextri-Maltose——— Mead's Casec——— Mead's Powdered Protein Milk——— Mead's Cod-Liver Oil——— Mead's Tool Kit for Individualized Infant Feeding———.

Name .....

Address .....

City ..... State .....

VIRGINIA MEDICAL MONTHLY—April Issue

MEAD JOHNSON & COMPANY

Evansville, Indiana

Virginia Medical Monthly

Official Organ of the Medical Society of Virginia

Vol. 51, No. 1.
WHOLE No. 862.

RICHMOND, VA., APRIL, 1924

20 CENTS A COPY
$2.00 A YEAR

Original Communications

REPORT UPON THE FOUR THOUSAND FIVE HUNDRED AND THIRTY-ONE PATIENTS DISCHARGED FROM CATAWBA SANATORIUM UP TO JANUARY 1, 1922.*

By J. B. NICHOLLS, M. D., Catawba Sanatorium, Va.

Catawba Sanatorium was formally opened on July 30, 1909, with an average capacity of thirty-eight patients for that year. From the opening of the institution up to and including December 31, 1921, four thousand five hundred and thirty-one patients were discharged from the Sanatorium. One hundred and fifty-four patients were admitted more than once, leaving four thousand three hundred and seventy-seven cases to be reported upon.

The following report is based upon these four thousand three hundred and seventy-seven cases; and is for the purpose of showing the after results of sanatorium treatment, or the condition of our discharged patients in the year 1922. After deducting the non-tuberculous and the suspicious cases, our final report is made upon the four thousand two hundred and fifty-seven cases definitely diagnosed as having had pulmonary tuberculosis.

The results given in the statistical tables are taken from replies to letters which we sent to our ex-patients in the early part of 1923, in order to ascertain the condition of these patients in 1922. No letters were sent to patients who had not been away from the Sanatorium for at least one year—hence the report includes only those patients who were discharged prior to January 1, 1922; or up to and including December 31, 1921.

Below is an outline of the plan which we have followed in compiling these statistics:

1. *Explanation of classification of disease for all tables:*
   - A. Non-tuberculous.
   - B. Suspicious.
     - (1) Including a small number who did not remain long enough for examination and diagnosis.
     - (2) Including those who remained for treatment, but upon whom a definite diagnosis could not be made.
   - C. Tuberculous.
     - (1) Minimal, or Incipient.—Slight lesion limited to one or both apieces. No serious tuberculous complications.
     - (2) Moderately Advanced.—A lesion of one or both lungs, more widely distributed than under minimal; the extent of which may vary, according to the severity of the disease, from the equivalent of that classed under minimal, to the equivalent of the volume of an entire lung with no evidence of cavity formation; no serious tuberculous complications.
     - (3) Far Advanced.—A lesion more extensive than under moderately advanced; or definite evidence of cavity formation; or serious tuberculous complications.

NOTE—The above classification of patients is the scheme that is used here, and is in accordance with the classification recommended by the American Sanatorium Association. Since 1920 we have classified our patients according to physical and X-ray findings.

*Read at the fifty-fourth annual meeting of the Medical Society of Virginia in Roanoke, October 16-19, 1923.

2. *Explanation of the economic condition of patients:*
   - A. Working full time.
   - B. Working part time.
     - (1) Including those who are able to work only part time.
     - (2) Those who are financially able to live by working only part time, but who possibly could work full time.
   - C. Not working.
     - (1) Including those unable to work.
     - (2) Possibly including some who are able to work but who are financially independent.
   - D. Living—Working time not reported.
     - (1) Including some unable to work.
     - (2) Some able to work only part time.
     - (3) Some able to work full time.
   - E. Not located.
     - (1) Including patients who have been well and at work so long that they do not care to be followed up by the Sanatorium.
     - (2) Including a few whose people do not wish us to write to them—such as insanity cases, etc.
     - (3) Including some who are dead; however at the present time we feel that a large percentage of these unlocated patients are still living.
   - F. Dead.
     - (1) Including patients who died in the Sanatorium.
     - (2) Patients who died after leaving.

Explanation of the Definitely Diagnosed Tuberculous Cases

Minimal—(See Table XVI.-A and Chart I.)

The average percentage of the minimal cases living in the year 1922 was 89.90 per cent; leaving a percentage of 10.10 minimal cases dead. I am unable to explain why the percentage of living cases was so much lower for the first three years of the Sanatorium's operation (1909-10-11) than for the following years. The number of patients discharged during that period was small, as the capacity of the Sanatorium was very limited in the beginning; but that does not explain why there should be such a marked difference in the percentages of the first three years from the following years. From 1912 on the percentage of minimal cases living remained about 90 per cent for every year except 1913, when it dropped to 76.84 per cent.

Moderately Advanced—(See Table XVI.-B Chart II.)

Beginning with the discharges for 1909, we find 100 per cent dead for that year. The percentage for the living gradually rises from zero, in 1909, to 71.19 per cent in 1914; and it then remains in between 70 per cent and 90 per cent for the following years included in the statistical tables. In 1922 the total living for all discharges of the moderately advanced class was 67.08 per cent. As time passes this living percentage will drop; for in addition to the general death rate for that number of people, some of these cases will eventually die of tuberculosis. It will take time to tell more accurately what to expect of the moderately advanced cases, so far as the disease becoming arrested, or so far as their living out what we might call a natural life, is concerned. Certainly the result will not be so good as for the minimal cases, but it will eventually be shown to be much better than the result for the far advanced cases.

Far Advanced—(See Table XVI.-C and Chart III.)

This table shows the percentages of the far advanced cases who were living and those who were dead in 1922. With some exceptions, the far advanced cases are more or less hopeless. In the majority of these cases we are able to do little further than to prolong their lives for a few months or a few years. At the end of the year 1922, only 54.55 per cent of the far advanced cases, who were discharged from the Sanatorium in 1921, were reported as living —a year or a little more after discharge from the Sanatorium.

With the additional beds added to the Sanatorium within the last four years, we

have admitted a greater number of the more advanced cases than in the previous years; and a good number of these cases have had little or no chance for improvement. Practically all far advanced cases are eventually going to die as the result of having had tuberculosis; and the majority of them will probably die within from one to three years after leaving the Sanatorium. However, there will be a small number of advanced cases that will go on for a number of years—some of them to lead useful lives.

Table XVI.-A, B and C and Chart IV. show the minimal, moderately advanced, and far advanced cases combined. Commencing with the discharges for 1910, you will notice that the percentage of living patients gradually rises as the time since discharge from the Sanatorium grows shorter. Also, the greater death rate of the far advanced cases, and even of the moderately advanced cases, over and above the incipient cases, of course, lowers the percentage of the living considerably when we make an average of all classes of cases.

Summary—Total discharges who were definitely diagnosed as having pulmonary tuberculosis—4,257 (omitting non-tuberculous and suspicious cases).

1. Minimal ..... 818 or 19.22%
2. Moderately Advanced....1015 or 23.74%
3. Far Advanced .....2424 or 56.94%

Probably 90 per cent of patients in the minimal stage of the disease, who undergo sanatorium treatment, may look for recovery. It will take a longer period of time to prove this, but I believe that the future will bear out this statement as a fact. The expectancy of life for people of the age of our minimal discharges cannot be better than the results obtained in these cases.

The prognosis of cases beyond the minimal stage gradually becomes more serious, depending upon the extent and the severity of the disease. In Table XVI.-C far advanced cases for the entire period (1909-1921) show 66.58 per cent dead in 1922. It would have been interesting to have been able to have obtained definite information as to the cause of the deaths of these patients. However, I am satisfied that at least nearly all of the far advanced cases died from tuberculosis, or as a result of having had tuberculosis. It was impossible for us to get accurate information as to the cause of death and the date of death in the majority of these cases.

After a study of these discharges it is not necessary to call your attention to the fact that we must improve our methods or means of reaching the disease before it has passed beyond the incipient stage, if we may expect to get better and more lasting results from sanatorium treatment of tuberculosis.

TABLE I.

Patients discharged during 1909. Report on condition for the year 1922.

	Number	Working Full time	Working Part time	Not Working	Living Working time Not reported	Not Located	Dead
Non-Tuberculous	1					1	
Suspicious	0						
Minimal	8	1	1	2			4
Mod. Advanced	13					1	12
Far Advanced	8						8
Total	30	1	1	2		2	24
	100%	3.33%	3.33%	6.67%		6.67%	80.00%

TABLE II.

Patients discharged during 1910. Report on condition for the year 1922.

	Number	Working Full time	Working Part time	Not Working	Living Working time Not reported	Not Located	Dead
Non-Tuberculous	2				1		1
Suspicious	0						
Minimal	30	6				9	15
Mod. Advanced	39	5				3	31
Far Advanced	43				1	4	38
Total	114	11			2	16	85
	100%	9.65%			1.75%	14.04%	74.56%

TABLE III.

Patients discharged during 1911. Report on condition for the year 1922.

	Number	Working Full time	Working art time	Not Working	Living Working time Not reported	Not Located	Dead
Non-Tuberculous	4					3	1
Suspicious	1						1
Minimal	41	13	4	1		7	16
Mod. Advanced	112	12	1	1		11	87
Far Advanced	111	7	6		1	6	91
Total	269	32	11	2	1	27	196
	100%	11.93%	4.09%	.74%	.37%	10.04%	72.83%

TABLE IV.
Patients discharged during 1912. Report on condition for the year 1922.

	Number	Working Full time	Working Part time	Not Working	Living Working time Not reported	Not Located	Dead
Non-Tuberculous	1					1	
Suspicious	0						
Minimal	44	29	4	2		7	2
Mod. Advanced	61	15	3	1	1	2	39
Far Advanced	149	16	8	1		9	115
Total	255	60	15	4	1	19	156
	100%	23.53%	5.88%	1.57%	.39%	7.45%	61.18%

TABLE V.
Patients discharged during 1913. Report on condition for the year 1922.

	Number	Working Full time	Working Part time	Not Working	Living Working time Not reported	Not Located	Dead
Non-Tuberculous	1	1					
Suspicious	1	1					
Minimal	45	27	3	1	2	2	10
Mod. Advanced	35	17	2				16
Far Advanced	117	13	5	2	1		96
Total	199	59	10	3	3	2	122
	100%	29.65%	5.02%	1.51%	1.51%	1.00%	61.31%

TABLE VI.
Patients discharged during 1914. Report on condition for the year 1922.

	Number	Working Full time	Working Part time	Not Working	Living Working time Not reported	Not Located	Dead
Non-Tuberculous	0						
Suspicious	5						5
Minimal	55	32	9	2		8	4
Mod. Advanced	63	31	7	3	1	4	17
Far Advanced	184	27	6	6	7	5	133
Total	307	90	22	11	8	17	159
	100%	29.32%	7.17%	3.58%	2.60%	5.54%	51.79%

TABLE VII.
Patients discharged during 1915. Report on condition for the year 1922.

	Number	Working Full time	Working Part time	Not Working	Living Working time Not reported	Not Located	Dead
Non-Tuberculous	4	2				1	1
Suspicious	4	1			1		2
Minimal	37	24	6	1	2	4	
Mod. Advanced	81	51	7	1		7	15
Far Advanced	215	33	12	8	1	4	157
Total	341	111	25	10	4	16	175
	100%	32.56%	7.31%	2.93%	1.18%	4.70%	51.32%

TABLE VIII.
Patients discharged during 1916. Report on condition for the year 1922.

	Number	Working Full time	Working part time	Not Working	Living Working time Not reported	Not Located	Dead
Non-Tuberculous	2	1				1	
Suspicious	3	2				1	
Minimal	31	23	3		2	1	2
Mod. Advanced	131	73	22	7	3	4	22
Far Advanced	238	52	19	13	2	9	143
Total	405	151	44	20	7	16	167
	100%	37.28%	10.87%	4.94%	1.73%	3.95%	41.23%

TABLE IX.
Patients discharged during 1917. Report on condition for the year 1922.

	Number	Working Full time	Working Part time	Not Working	Living Working time Not reported	Not Located	Dead
Non-Tuberculous	2	1				1	
Suspicious	7	1				2	4
Minimal	45	35	4		1	1	4
Mod. Advanced	94	54	18	2		5	15
Far Advanced	227	44	18	15	5	8	137
Total	375	135	40	17	6	17	160
	100%	36.00%	10.67%	4.53%	1.60%	4.53%	42.67%

TABLE X.
Patients discharged during 1918. Report on condition for the year 1922.

	Number	Working Full time	Working Part time	Not Working	Living Working time Not reported	Not Located	Dead
Non-Tuberculous	5	3		2			
Suspicious	3	2					1
Minimal	98	64	16	2	2	6	8
Mod. Advanced	79	39	10	6	3	7	14
Far Advanced	226	35	22	17	4	12	136
Total	411	143	48	27	9	25	159
	100%	34.79%	11.68%	6.57%	2.19%	6.08%	38.69%

TABLE XI.
Patients discharged during 1919. Report on condition for the year 1922.

	Number	Working Full time	Working Part time	Not Working	Living Working time Not reported	Not Located	Dead
Non-Tuberculous	1						1
Suspicious	5	1	1		1		2
Minimal	137	99	19	5	7	6	1
Mod. Advanced	94	35	18	6	4	4	27
Far Advanced	292	40	30	13	6	6	197
Total	529	175	68	24	18	16	228
	100%	33.08%	12.86%	4.54%	3.40%	3.02%	43.10%

TABLE XII.

Patients discharged during 1920. Report on condition for the year 1922.

	Number	Working Full time	Working Part time	Not Working	Living Working time Not reported	Not Located	Dead
Non-Tuberculous	17	5	4	1	------	-------	7
Suspicious	22	14	5	3	------	-------	-------
Minimal	116	69	23	7	3	3	11
Mod. Advanced	101	44	28	14	3	1	11
Far Advanced	327	49	36	46	5	2	189
Total	583	181	96	71	11	6	218
	100%	31.04%	16.47%	12.18%	1.89%	1.03%	37.39%

TABLE XIII.

Patients discharged during 1921. Report on condition for the year 1922.

	Number	Working Full time	Working Part time	Not Working	Living Working time Not reported	Not Located	Dead
Non-Tuberculous	7	4	-------	-------	------	-------	3
Suspicious	22	7	5	2	3	1	4
Minimal	131	64	42	19	4	2	-------
Mod. Advanced	112	41	36	15	6	3	11
Far Advanced	287	37	64	48	7	1	130
Total	559	153	147	84	20	7	148
	100%	27.37%	26.30%	15.03%	3.58%	1.25%	26.47%

TABLE XIV.

Total discharges 1909-1921, inclusive. Report on condition for the year 1922.

	Number	Working Full time	Working Part time	Not Working	Living Working time Not reported	Not Located	Dead
Non-Tuberculous	47	17	4	3	1	8	14
	100%	36.17%	8.51%	6.39%	2.13%	17.02%	29.78%
Suspicious	73	29	11	5	5	4	19
	100%	39.72%	15.07%	6.85%	6.85%	5.48%	26.03%
Minimal	818	486	134	42	23	56	77
	100%	59.41%	16.38%	5.14%	2.81%	6.85%	9.41%
Mod. Advanced	1015	417	152	56	21	52	317
	100%	41.08%	14.98%	5.52%	2.07%	5.12%	31.23%
Far Advanced	2424	353	226	169	40	66	1570
	100%	14.56%	9.33%	6.97%	1.65%	2.72%	64.77%
Total	4377	1302	527	275	90	186	1997
	100%	29.77%	12.04%	6.28%	2.05%	4.24%	45.62%

TABLE XV.

Minimal, Moderately Advanced (and Far Advanced discharges 1909–1921, inclusive. Omitting Non-tuberculous and suspicious.) Report on condition for the year 1922.

	Number	Working Full time	Working Part time	Not Working	Living Working time Not reported	Not Located	Dead
Minimal	818	486	134	42	23	56	77
	100%	59.41%	16.38%	5.14%	2.81%	6.85%	9.41%
Mod. Advanced	1015	417	152	56	21	52	317
	100%	41.08%	14.98%	5.52%	2.07%	5.12%	31.23%
Far Advanced	2424	353	226	169	40	66	1570
	100%	14.56%	9.33%	6.97%	1.65%	2.72%	64.77%
Total	4257	1256	512	267	84	174	1964
	100%	29.50%	12.03%	6.27%	1.98%	4.09%	46.13%

Of the 4,257 classed as tuberculous, 818 or 19.22% were Minimal, 1,015 or 23.84% were Moderately Advanced, 2,424 or 56.94% were Far Advanced.

TABLE XVI. (A)

Report of discharged patients for the year 1922. (Omitting patients "Not Located.") Also see Chart I.

Minimal	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	Totals
Living	4	6	18	35	33	43	33	28	40	84	130	102	129	685
	50.00%	28.57%	52.94%	94.59%	76.74%	91.49%	100%	93.33%	90.91%	91.30%	99.24%	90.27%	100%	89.90%
Dead	4	15	16	2	10	4	0	2	4	8	1	11	0	77
	50.00%	71.43%	47.06%	5.41%	23.26%	8.51%	-------	6.67%	9.09%	8.70%	.76%	9.73%	-------	10.10%
Total	8	21	34	37	43	47	33	30	44	92	131	113	129	762
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

TABLE XVI. (B).

Report of discharged patients for the year 1922. (Omitting patients "Not Located.") Also see Chart II.

Mod. Advanced	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	Totals
Living	0	5	14	20	19	42	59	105	74	58	63	89	98	646
	-------	13.89%	13.86%	33.90%	54.29%	71.19%	79.73%	82.68%	83.15%	80.56%	70.00%	89.00%	89.91%	67.08%
Dead	12	31	87	39	16	17	15	22	15	14	27	11	11	317
	100%	86.11%	86.14%	66.10%	45.71%	28.81%	20.27%	17.32%	16.85%	19.44%	30.00%	11.00%	10.09%	32.92%
Total	12	36	101	59	35	59	74	127	89	72	90	100	109	963
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

TABLE XVI. (C)

Report of discharged patients for the year 1922. (Omitting patients "Not Located.") See also Chart III.

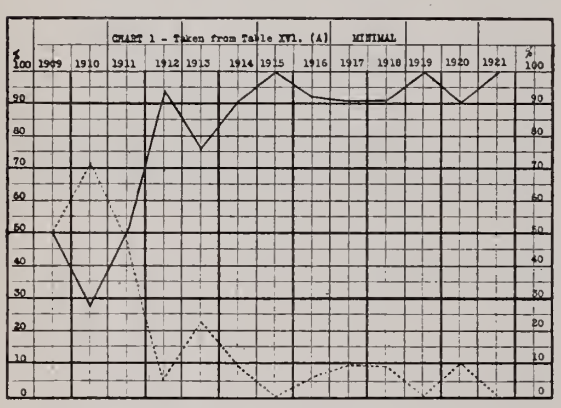
Far Advanced	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	Totals
Living	0	1	14	25	21	46	54	86	82	78	89	136	156	788
		2.56%	13.33%	17.86%	17.97%	25.70%	25.59%	37.56%	37.44%	36.45%	31.12%	41.85%	54.55%	33.42%
Dead	8	38	91	115	96	133	157	143	137	136	197	189	130	1570
	100%	97.44%	86.67%	82.14%	82.03%	74.30%	74.41%	62.44%	62.56%	63.55%	68.88%	58.15%	45.45%	66.58%
Total	8	39	105	140	117	179	211	229	219	214	286	325	286	2358
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

TABLE XVI. (Summary of Divisions A, B and C.)

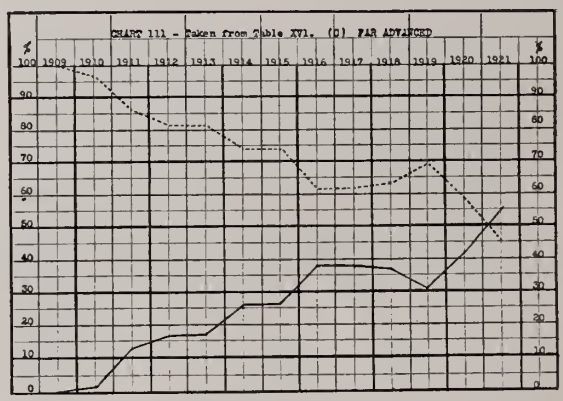
Report of discharged patients for the year 1922. (Omitting patients "Not Located.") Also see Chart IV.

Minimal Mod. Advanced and Far Advanced	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	Totals
Total Living in 1922	4	12	46	80	73	131	146	219	196	220	282	327	383	2119
	14.29%	12.50%	19.17%	33.89%	37.44%	45.96%	45.91%	56.74%	55.68%	58.20%	55.62%	60.78%	73.09%	51.90%
Total Dead in 1922	24	84	194	156	122	154	172	167	156	158	225	211	141	1964*
	85.71%	87.50%	80.83%	66.11%	62.56%	54.04%	54.09%	43.26%	44.32%	41.80%	44.38%	39.22%	26.91%	48.10%
Totals	28	96	240	236	195	285	318	386	352	378	507	538	524	4083
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

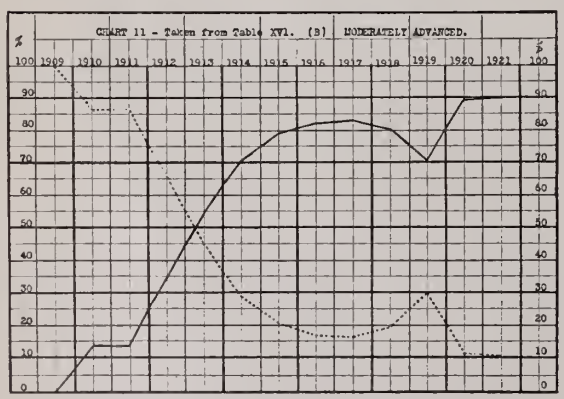
*Note—One hundred and twenty-four (124) of the total number of deaths occurred during sanatorium residence .



Solid line, patients living. Dotted line, patients dead.



Solid line, patients living. Dotted line, patients dead.



Solid line, patients living. Dotted line, patients dead.

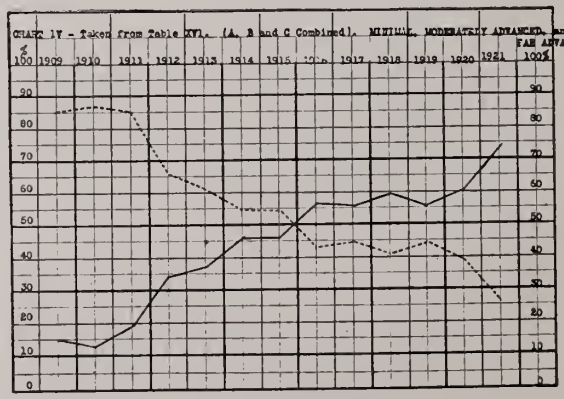


CHART IV - Taken from Table XVI. (A, B and C Combined). MINIMAL, MODERATELY ADVANCED, and FAR ADVANCED.
1909 1910 1911 1912 1913 1914 1915 1917 1918 1919 1920 1921

Solid line, patients living. Dotted line, patients dead.

DISCUSSION.

Dr. W. E. Brown, Blue Ridge Sanatorium: Mr. President, I would like to emphasize Dr. Nicholls' last statement. You will note that only about 10 per cent of the incipient cases, who have been discharged from the Sanatorium from its opening in July, 1909, through 1921, are dead. A large percentage of these cases necessarily had influenza during the "flu" epidemic and no doubt quite a number died of that disease. The outlook for the incipient case is exceedingly good; the outlook for the moderately advanced case is fair; but for far advanced cases it is questionable, in my mind, as to whether from an economic standpoint it is worth the money, which the State spends to treat them. If the profession could only get these cases when in the early stages, not dismiss them with a tonic; but make a thorough examination of the chest, and not wait until the case is hopeless before sending to a sanatorium! I frequently have this appeal brought to me, "Doctor, can you take So-and-So into the Sanatorium? He is down and out and cannot get adequate treatment at home?" It is a touching appeal, but should the State, with its limited bed capacity, treat a case like that if early cases can be found to fill those beds?

Dr. Charles R. Grandy, Norfolk: I want to go a step farther in regard to the care of the far advanced cases. These should not be sent a long way from home. The State of Virginia should have progressed far enough now to take care of these cases without sending all to Catawba. They interfere with the treatment of the early, curable cases. There is nothing so discouraging as to have others getting along badly or dying. The different communities should get better facilities to take care of patients, that this institution was not built to take care of.

Dr. R. B. James, Danville: This report is the most agreeable surprise to me. That 80% of the incipient cases of tuberculosis can be cured is certainly encouraging, but Dr. Nicholls suggests that the failure to cure the more advanced cases makes it impractical for the State to attempt treatment for such cases. This brings up the question, does segregation of these cases diminish the aggregate number of cases in the State? If it does, then the State should continue to care for them.

In Danville we have a Sanatorium where all cases are cared for; most advanced cases are committed to our institution. The incipient ones are kept until they can be cared for at State institutions. There is often much delay in getting these cases transferred. We find that removing all cases from the family has very much reduced the whole number of such cases in our city, and it is very probable that if all cases could be cared for by the State or local authorities, we would greatly diminish this scourge in our State.

Dr. W. E. Vest, Huntington, W. Va.: I would like to ask Dr. Nicholls what he classifies as minimum and what as far advanced tuberculosis. Dr. Brown's statement that he did not consider it worth while to treat far advanced cases in a Sanatorium appears to me entirely too radical. It certainly seems worth while, if we are able to salvage so great a percentage of these unfortunates as Dr. Nicholls has shown can be done, that far advanced cases should be given sanatorium treatment wherever possible. If out of a great many men who have advanced lesions, a few become arrested cases and are able to work, it impresses me that we are repaid for our efforts.

Dr. Ben A. Rice, Forest Depot: There is no question about the necessity of hospitalizing advanced cases of pulmonary tuberculosis, both as a humane and an economic measure.

There is a question whether they should be placed near the mild cases, even if under the same management, on account of the psychological effect and because they are managed quite differently.

Dr. J. B. Nicholls, Catawba Sanatorium: I do not consider it an advisable thing to send an advanced, hopeless case of tuberculosis away from home to die. The admission of such a case to a sanatorium has a bad effect upon the patients already in the sanatorium who are making a favorable progress; and the unimprovement or the death of a patient of this type while in the sanatorium has a tendency to cause an unfavorable reaction against sanatorium treatment and training among the patient's home people or in his community.

As a matter of fact, the sanatorium had received a hopeless case—a case in which nothing could be done other than to relieve the patient's symptoms to a certain extent and to make life as endurable as possible so long as it should last. I have seen the end hastened by the exertion and excitement necessary to move a patient from his home to a sanatorium. An acute case beyond the minimal, or incipient, stage often becomes definitely worse from the travelling necessary to reach the sanatorium.

These patients should be kept strictly in bed at home; and later on, if there should be a lessening of symptoms, or if the disease should show any tendency to quiet down, they could then be sent to a sanatorium. The advisability of sending such a patient to a sanatorium even at this point is a matter of judgment, which should and must be left to the discretion of the family physician.

After a patient has become hopeless and more or less bedridden, he is unable to go about to spread forth contagion to the public at large. It now becomes only necessary to isolate him in the home in order to properly protect the home people. In such cases the same precautions should be taken in the home to prevent the continual spread of infection that are taken in a sanatorium. The greater the dosage of infection and the longer continued, the greater the chance of an eventual "breakdown" from tuberculosis.

DIABETES MELLITUS.*

By W. P. JACKSON, M. D., Roanoke, Va.

This disease has been known since the first century A. D. It was given a good description by Willis in the seventeenth century. The modern study of the disease dates from Claude Bernard's work in 1857. Several investigators commented on the occasional association of diabetes and the pancreatic disease, and Nicholas Senn probably was the first to produce experimental diabetes by total extirpation of the pancreas in a dog in 1886. The dog lived nine days, retained a good appetite, but lost five pounds. There is no record of urinalysis being made for sugar.

Von Mering and Minkowski in 1889 proved that removal of the pancreas produced a fatal diabetes. Lepine, MacCallum, and Opie are

*Read before the Roanoke Academy of Medicine, October 15th, 1923.

mentioned as pioneers in advancing the theory and proving that the pancreas functions as a gland of internal secretion, and that the disease of the pancreas is associated with diabetes. Clarke, in 1917, gave good evidence of the existence of a pancreatic internal secretion by removing the heart and pancreas of animals and perfusing these organs with Locke's solution containing glucose. He proved that sugar disappeared into the heart more rapidly when the circuit included the pancreas than when the heart alone was perfused. He also discovered that the specific rotation of sugar is changed on passing through the pancreas.

Next came attempts to prepare extracts of the pancreas which might be used in the treatment of diabetes. Many investigators attempted this, and it is thought that at least one of these obtained the active principle, but he never produced it suitable for use on patients. Grafts of pancreatic tissue were tried but this was not found of value in man because the grafts made from one animal species into another invariably atrophied.

The production of the extract suitable for use in patients was conceived and executed by Banting and Best and the first patient was treated in January, 1922. Since that epoch making date, the attention of the whole medical world has been drawn to the new treatment for diabetes.

They first ligated the pancreas of animals and caused atrophy of the acinous tissue and consequent prevention of the production of external secretion, which destroys the action of the internal secretion. After a period of about ten weeks the pancreas was removed and the internal secretion extracted from it. This gave a potent extract.

They next attempted to exhaust the normal pancreas by repeated injections of secretin and then extraction of this pancreas. A potent material was also obtained from this, but not every time. The third step was to extract from the pancreas of fetal calves of under five months' development. Previous to the fifth month of intra-uterine life, no proteolytic enzyme is supposed to be formed. This also was quite potent. The fourth step was to extract with alcohol from the whole pancreas of animals. This, when concentrated, proved to be as potent as that from a degenerated gland, an exhausted gland, or a fetal gland, and is the extract now used.

Best and Scott have recently proven that insulin can be extracted from other tissues, such as submaxillary, thymus, and thyroid glands, and from liver, spleen, and muscle tissues, but only a small fraction as much as from the pancreas.

In discussing the treatment of diabetes, the first subject is the diet. Diabetes is considered a disturbance of all the elements of metabolism, the fats, proteins, and carbohydrates. Adams has very ably discussed this subject and takes it up under four principles. The first of these is total dietary restriction. Allen and Joslin have proven this. This principle of limiting food calories to actual needs is valuable to all, especially to the diabetic. The chief advantage in diabetes lies in the depressing effect on the metabolic rate.

The second principle is one of protein restriction. Protein by some authors is considered almost a poison in diabetes. The ideal diet in diabetes is one which contains just sufficient protein to keep the patient in nitrogen equilibrium. Practically, this represents about 1 gram protein for each kilo of body weight. Some clinics figure that 2/3 gram protein for each kilo is sufficient. Growing children naturally require slightly more and Geyelin gives as much as 3 to 4 grams per kilo, especially while they are being treated during the period of under-nutrition. It is generally agreed that the excellent results obtained by Newburgh and Marsh with their high fat diet is due in considerable part to the associated protein restriction.

The third principle in the diet is carbohydrate restriction. Woodyatt's idea is "That a weakened pancreas in the presence of a sufficient supply of glucose might be stimulated into a state of fatigue and decreased function, and that a sufficient diminution of the glucose supply might then lessen the stimulation, place the organ in a state of comparative rest and permit it to recuperate up to a certain limit." From this it seems proper to give just sufficient carbohydrates to balance the ketogenic effect of the fatty acids.

The fourth principle is the question of balancing the ketogenic (fatty acid) and the antiketogenic (glucose) materials in a food mixture. Too much fat produces acidosis nd this, unchecked, produces coma. Newburgh and Marsh have shown what may be done with a high fat diet, but there is a limit to this.

Woodyatt suggested that there is a molecular relationship between fatty acid and glucose in the oxidation of fat in the body. Shaffer, in his experiments has quite definitely proven this theory of Woodyatt's and this discovery of the mechanism of acetone formation is considered by some more important than the discovery of insulin. The molecular ratio of fatty acid and glucose is 270: 180, or 1.5:1 and this ratio is the one held best in preventing acidosis. After this work of Shaffer's, Woodyatt gave us a clear rational statement of the object and method of diet adjustment in diabetes. His idea is to combine food-stuffs so that for every molecule of fatty acid that might arise from the food, one molecule of glucose, or its equivalent, will be available.

In arriving at this ratio, certain formulas are necessary for calculation. It has been found that glucose is formed from the food as follows: .58 P + .1 F + C =G, in which P represents proteins, F fats, C carbohydrates, and G glucose. Fatty acid is formed as follows: .46 P plus .9 F equals F. A. Since the ratio of molecular weights of fatty acids and glucose is 270: 180 or 1.5:1, therefore to produce one molecule of glucose for every molecule of fatty acid it is necessary to have 1 gm. of glucose for every 1.5 gm. of fatty acid. This necessitates considerable calculation. In order to diminish this work, tables have been prepared. Hannon has worked out a very comprehensive one and a very useful one in the form of a graph. Wilder and Adams have also prepared one in which the total caloric requirements of the individual are represented. I think both are very good and it is left with the individual as to the choice.

It is true that Newburgh and Marsh often disregard this ratio of 1.5 to 1, and they seem to produce no acidosis. The question arises, is this a wise procedure? There seem to be two possibilities. The patient may store fat, which is not considered desirable unless he is decidedly under-nourished, for fat precedes diabetes. The other possibility is that some acetone bodies may be excreted in some cases, which is to be avoided if possible. It has been estimated that sugar tolerance will increase in at least 80 per cent of the cases if they are kept free from acetone bodies. The presence of these bodies in the urine is more harmful than is the presence of sugar.

McCann and his co-workers have reported some cases that I think demonstrate very nicely the closeness of this ratio to ketonuria. One diagram shows very beautifully how as the ratio of F. A. to G. gets down to 1.5 the acetone bodies disappear from the urine.

By observing the above principles in the dietary of a diabetic, a fairly large percentage will be able to get along well on a maintenance diet without insulin. For the remaining cases, the insulin is truly a life saver. The next question is how much and how often is it to be given? This depends on the severity of the case. I believe it is better to have no fixed rule but to begin with a small dose and gradually increase until the desired results are obtained. The idea, of course, is to fulfill the requirements for the patient's status in life and the proper ratio of the food-stuffs observed, and then to give just sufficient insulin to keep his blood sugar approximately normal. In the mild cases, this can be done very well with one injection daily, and the time for that, it is generally agreed, is about fifteen to thirty minutes before the breakfast meal. This will be found to work very well when not more than 20 or 25 units are given daily. If more than that is required, there are two reasons why at least two doses are advisable. In the first place, a large injection at one time may come when there is not enough glucose in the circulating blood to prevent a hypoglycemia. In the second place, the effect of the insulin does not last long enough to prevent a rather high glycemia, and with it, a glycosuria during the night.

In discussing the complications, acidosis with coma is the first condition that appeals to us. In this condition there is an excess of the acetone bodies, and the object is to rid the body of these. Usually a considerable amount of glucose is present in the circulating blood, so a sufficient dosage of insulin to metabolize the glucose present will in many cases overcome the acidosis. Large doses of insulin at this stage, sometimes as much as 30 units repeated every four to six hours, are required. This dosage may use up a sufficient glucose to produce a very severe or even fatal hypoglycemia. To prevent this danger, glucose may be given by mouth if sufficiently conscious, per rectum or, in emergencies, intravenously.

An adjunct to that is the administration of sodium bicarbonate. The advisability of giving alkalies in the treatment of diabetic aci-

dosis has been much discussed. For a short while the intravenous administration of sodium bicarbonate was quite popular. Now it is seldom given. In spite of this swerving away from it, many writers seem to think a small amount given early in the treatment of coma decreases the dyspnea and increases the comfort of the patient.

Forcing of fluids to the extent of a quart every six hours is valuable. They furnish a vehicle for the glucose, promote diuresis, and relieve the dehydration.

Infections, it is well known, very seriously disturb the metabolism in diabetes. In these cases insulin, if boldly, but wisely used, produces great good. These patients, in the presence of infection are usually resistant to the action of insulin—as much as 100 units may be required in a day, or even more. On account of unusual resistance and the rapid fluctuation in the patient's tolerance by the degree of the intoxication and also the variableness of their appetites, the dangers are much greater than otherwise. Under such circumstances, the insulin is given in multiple small doses sufficient to combat the acidosis, but with no regard for the glycosuria, and the amount of available glucose here is increased to prevent a possible hypoglycemia.

The next question considered is hypoglycemia. This reaction manifests itself when the blood sugar gets down to about .07 — .08 per cent. The symptoms begin first as a feeling of nervousness or tremulousness, then an excessive hunger or a weakness with a feeling of "goneness." The mild reactions may show no more than this but the severe ones will show in addition many others as delirium, confusion, syncope, collapse, and death. This calls for glucose immediately and in the mild cases a little sugar eaten is sufficient; in the severe cases it may be necessary to give it intravenously. This reaction comes on usually about two hours after an injection, but the taking of food may delay it at least four hours so that it may develop six hours after an injection and this is to be emphasized in those cases that require a dose just before the evening meal. On account of the rapidity with which these reactions develop the treatment must be instituted immediately.

In many clinics the patients during their stay in the hospital are given sufficient insulin to produce a slight reaction. Fortified with this knowledge they are instructed to carry with them always glucose, or its equivalent in some form, as a lump of sugar, and with the first appearance of these symptoms to eat the sugar.

In order that these patients may keep themselves on a proper diet and become more independent, a little instruction during their stay in the hospital is very helpful. They may be taught to test their own urine for sugar and acetone bodies, and to give their own injections of insulin. It is especially important that they be instructed to weigh their food and, if sufficient time and intelligence are available, they may be taught the composition and fuel value of their foods. Then, with a knowledge of what they require, they can "juggle" their own diets and not have to adhere to one fixed diet, a copy of which may be given them on leaving the hospital.

I want to discuss a few cases for a moment or two.

Mrs. G., age 60, wt. 70 kilo, entered the hospital July 9th, with a blood sugar of .22 per cent and putting out five gms. sugar daily. No acetone bodies were present. On a diet of P 50 gm., F 100 gm., and C 50 gm., her urine sugar disappeared in a few days. By using 15 — 20 units of insulin daily we got her blood sugar to .17 per cent. She went home a short time later, on a diet of approximately 2,000 calories, with P 65 gm., F 170 gm., and C 60 gm. and was instructed to take about 10 units of insulin daily. She has been allowed to get around and do most of her housework and feels well. At present she is taking only 5 units daily, remaining sugar-free and feeling fine, with no loss of weight.

Mrs. B., age 43, wt. 60 kilo, entered the hospital the same day, with a blood sugar of .54 per cent and excreting 7 gm. sugar daily with an occasional trace of acetone. She was put on a similar diet, but received about 25 units daily of insulin to bring her blood sugar to approximately normal, and make the urine sugar-free. She also went home the same day. They happen to be neighbors and when one makes a move so does the other. I gave her a diet similar to the other. That diet has a little more protein possibly than they actually need, but due to their having to do most of their housework, I thought I would be sure to give them enough. The rest of the diet

is made up so that in the end the ratio of fatty acid to glucose is approximately 1.5:1.

They are both doing well now, and while Mrs. B. threatens to rebel sometimes against the daily hypodermic, she realizes what it means and is sticking to it. She is at present taking 10 units daily in one injection. I heard from her a few days ago, saying she is sugar-free and doing all right.

Mr. M., age 29, wt. 63 kilo, entered the hospital August 27th, with a blood sugar of 43 per cent and a daily output of 7 gm. sugar. No acetone bodies present. On a diet of P 40 gm., F 120 gm., C 60 gm., he rapidly improved. He was in a hurry to get out of the hospital and, without waiting to see what diet alone would do for him, we gave him 15 units of insulin one day. The next day his blood sugar was .17 per cent and urine sugar-free. This was his third day in the hospital. He has not had another dose of insulin since. We sent him home four days later on a diet approximately the same as the others. I asked him to let us know how he progressed. A week after he got home, he wrote he was doing well and his urine continued sugar-free. I sent him a diet of 2,400 calories with the ratio of fatty acids and glucose remaining approximately 1.5:1 and told him he could go back to his carpenter work. A few days ago he wrote that he was still sticking closely to that diet. His doctor says his urine continues sugar-free and he says he is feeling fine, has gained five pounds in weight, and is working regularly.

A fourth case I mention that is not doing so well. Mr. I. S. R., age 47, wt. 48 kilo. On admission his blood sugar was about 51 per cent and daily output of sugar about 20 gm. On a diet of 1,500 calories with a fatty acid, glucose ratio of 1.6 he required approximately 30 or 40 units of insulin daily. He got along very nicely for awhile but we found that when he felt disposed to he would help himself to other diets than what were prescribed for him and consequently, when things were apparently going all right his urine would suddenly start putting out considerable sugar, and his blood sugar as suddenly rise. Under those circumstances we sent him home on a diet just sufficient to fill his needs, with 25 units of insulin daily. I am sure he is not sticking to his diet and am daily expecting him to be brought in in coma.

We have had one or two cases with infection who required surgical operations to control the infection. With regulation of their diet and the use of insulin they rapidly recovered. Some others have gone home and remained sugar-free by keeping on a properly balanced diet and without insulin.

In conclusion, I want to say that, if we expect to get our patients back to earning a livelihood, we must give them enough food to supply the required energy and, in the proportion as outlined above, but no more, and give them just enough insulin to properly utilize it, because as Joslin has so well said, "Overnutrition is harmful in health, doubly harmful in diabetes, and we see no reason why insulin should make it safe. We do not believe in diabetic patients walking on insulin stilts any more than is necessary." And to quote him further, "For the wise, who may be rich or poor, young or old, and for the innocent who can be cared for, insulin is a benefit, but for the ignorant who likewise may be rich or poor, young or old, it can be dangerous, and a gift of free insulin to such is like casting away pearls."

Bibliography.

1. Wilder, R. M.: Insulin, The Medical Clinics of North America, 1923, VII. I.
2. Senn, N.: The Surgery of the Pancreas as Based Upon Experiments and Clinical Researches. Tr. Am. Surg. Assn., 1886, IV., 99-232.
3. Mering, J. V., and Minkowski, O.: Diabetes Mellitus nach Pankreas Exsterpation. Arch. f. exper. Path. u. Pharmakol, 1889, XXVI., 371-387.
4. Lepine, R.: Nouvell Theorie du Diabete. Lyon Med., 1889, LXII, 619-621.
5. MacCallum, W. G.: On the Relation of the Islands of Langerhans to Glycosuria. Johns Hopkins Hosp. Bull., Baltimore, 1909, XX, 265-268.
6. Opie, E. L.: Diabetes Mellitus Associated with Hyaline Degeneration of the Islands of Langerhans of the Pancreas. Johns Hopkins Hosp. Bull., Baltimore, 1901, XII, 263.
7. Clarke, A. H.: The Interrelation of the Surviving Heart and Pancreas of the Dog in Sugar Metabolism. Jour. Exper. Med., 1917, XXVI, 721-744.
8. Banting, F. G., Best, C. H., and Noble, C.: Pancreatic Extracts in the Treatment of Diabetes Mellitus. Bulletin of the Battle Creek Sanatorium and Hospital Clinic. 1923, XXVIII, 155.
9. Best, C. H. and Scott, D. A.: Insulin in Tissues Other Than the Pancreas. J. A. M. A., 1923, LXXXI, 382.
10. Adams, S. F.: Food Mixtures Suitable for Diabetic Patients, Receiving Insulin and the Method of Calculating Diets. Medical Clinics of North America, 1923, VII, 13.
11. Newburgh, L. H., and Marsh, P. L.: The Use of a High Fat Diet in the Treatment of Diabetes Mellitus. Arch. Int. Med., 1920, XXVI, 647-662.

12. Shaffer, P. A.: Antiketogenesis I. An in Vitro Analogy. Jr. Biol. Chem., 1921, XLVIII, 433-448.
13. Shaffer, P. A.: II The Ketogenic Antiketogenic Balance in Man. Jour. Biol. Chem., 1921, XLVII, 449-473.
14. Woodyatt, R. T.: Objects and Methods of Diet Adjustment in Diabetes. Arch. Int. Med., 1921, XXVIII, 125-141.
15. Geyelin, H. R., Harrop, G., Murray, M. F., and Corwin, E.: The Use of Insulin in Juvenile Diabetes. The Journal of Metabolic Research, 1923, II, 767.
16. Hannon, R. R. and McCann, W. S.: A Graphic Method for the Calculation of Diabetic Diet in the Proper Ketogenic Antiketogenic Ratio. Johns Hopkins Hosp. Bull., Baltimore, 1922, XXIII, 128.
17. Wilder, R. M.: Optional Food Mixtures for Diabetic Patients, J. A. M. A., 1922, LXXVIII, 1878-1884.
18. McCann, W. S., Hannon, R. R., Perlzweig, W. A., and Tompkins, E. H.: Studies of Diabetes Mellitus II. Results of Treatment by Diet Adjustment with Reference to Maintenance Requirement and the Ketogenic Antiketogenic Balance. Arch. Int. Med., 1923, XXXII, 226-258.
19. Joslin, E. P., Gray, H., and Root, H. F.: Insulin in Hospital and Home. The Journal of Metabolic Research, 1923, II, 651.

Mountain Trust Building.

THE RADIOLOGICAL TREATMENT OF DISEASED TONSILS.*

By JAMES W. HUNTER, Jr., M. A., M. D., Norfolk, Virginia.

It is usually conceded that the three R's of reading, 'riting and 'rithmetic form the basis of all education. It is by the reading of manuscript and the printed page that our thoughts are conveyed from one to another. It is the art of writing that has made their transcription possible. In a more liberal sense it is the art of writing with a connotation of logic, diction and rhetoric that has made these same thoughts worthy of preservation or clothed them in a suitable garment. But it has also remained for arithmetic and the allied branches of mathematics to make all scientific and other achievement possible. And so it is with the theory of focal infection. It is the three T's that furnish most of our bodily ills. It is teeth, tonsils and "tummy," these three. And of these the teeth and tonsils play the leading roles.

To the teeth we shall not now devote ourselves. Suffice it to say that much has been attributed to dental sepsis. Great investigators, like Hunter and Rosenow, have proclaimed that the primary portal of most of the infections is the teeth. Great surgeons, like Mayo and Hunner, claim that even surgical infections of the urological system are in many cases directly due to dental disease. So that it behooves us to study the teeth, to examine them thoroughly, and to eliminate the infection. This is comparatively an easy thing to do. Roentgen and his successors have provided us with a means of accurate diagnosis. Modern dentistry has suggested a means of elimination. This, naturally, calls into consideration the school of exodontists. But to many, as to myself, there comes the conviction that, as in the surgical world an osteomyelitis or compound fracture is no longer to be considered the occasion for an amputation, so the dental surgeon of the near future will conserve the function of the teeth. He will prevent and cure the infection. And in this way our earthly happiness will be conserved.

We now pass to the second of the immortal T's. We shall consider the tonsil. These glands have, no doubt, an inherent function to perform, else nature would not have provided them. But there is scarcely a greater focus of infection than the diseased tonsil. Anatomically it is in such intimate connection with the glands of the neck and blood stream that the direct transmission of sepsis is comparatively simple. Then, too, a lymphoid mass possessed of crypts has the added danger of harboring a nucleus for the culture of the various bacteria, admirably serving continually to infect the entire digestive tract. Of the direct effects of diseased tonsils we are all familiar, recurrent attacks of tonsillitis, abscess of the tonsils, quinsy, etc. Of the indirect effects of the diseased tonsils volumes have been written, of rheumatism, of cardiac diseases, even of hyperthyroidism. Verily, our second T is by no means a negligible factor.

Hence, the logic of removal. The complete extirpation of the diseased tonsil will certainly rid the system of infection and in suitable cases the wisdom of such a procedure can not be questioned. But this also has its drawbacks. The old operation of tonsillectomy, whereby the portion of the tonsil projecting into the throat was removed by a snare or tonsillotome, only to leave an ugly stump and a large buried mass, must be condemned. If the tonsil is to be properly eradicated, the entire mass must be dissected out. As little of the tissue should be left as possible. And, while perhaps in the

*Read at the meeting of the Seaboard Medical Association of Virginia and North Carolina, at Newport News, Va., December 4-6, 1923.

child the operation is not necesarily an extreme one, in the adult it becomes of major importance and has its contra-indications, as we shall see.

No surgeon would knowingly operate on a hemophiliac. He would court disaster by an oozing and hemorrhage likely to prove fatal. Even in normal individuals the question of hemorrhage must be considered. Only the other day one of my friends informed me that he was careful to tie all of the bleeding points. Nor would one care to operate upon a patient with a high basal metabolism. I have at present such a case under treatment. A young lady, age 23, suffers with hyperthyroidism with a basal metabolism of +45 due, in my opinion, to diseased tonsils. Her neck is normal in size; her teeth and sinuses are negative; she has no substernal thyroid. And again, high blood pressure, cardiac disease or advanced age, would certainly be regarded as a contra-indication.

But perhaps the greatest bugbear, which the surgeon meets is the employment of some form of general anaesthesia. The risk of the inspiration of blood, mucus or other material is not devoid of extreme danger. Nor does the employment of local or conductve anaesthesia completely eliminate the danger. There is scarcely any surgeon of large practice, who has not had a tonsillectomy to be followed by an abscess of the lung. Every roentgenologist has seen one or more examples. But perhaps the most available figures are those of Wessler and Jaches. Of the first 100 cases of abscess of the lung observed by them at Mt. Sinai Hospital, New York, there were twenty-seven aspiration abscesses of the lung. Of these twenty-one followed a tonsillectomy. All other operations contributed but six cases.

The well known action of the roentgen rays and the beta and gamma rays of radium upon lymphoid and adenoid tissue has naturally suggested their application to the tonsil. Thus, Murphy, Witherbee, Hussey and Sturm, of the Rockefeller Institute, report a series of forty-six cases, ranging from three and one-half to forty-five years, in which they were able to keep complete records, and about forty other individuals, who were treated, but did not return for examination. In all but four cases they obtained improvement. "Forty-six individuals with tonsils both hypertrophied and otherwise pathologically altered, some of whom had in addition adenoid masses and lymphoid deposits posterior to the pillars of the fauces, were given exposures to the X-rays. In all but four cases the treatment was followed by marked atrophy of the tonsils and other lymphoid deposits, attended by an opening and drainage of the tonsillar crypts." Waters, McCready and Hitchcock, of the Johns Hopkins Hospital, report a series of ten cases of chronic tonsillitis, one case of Sydenham's chorea, one case of chronic suppurative otitis media with chronic tonsillitis, and one case of acute catarrhal otitis media, treated by the roentgen rays. Of the cases of chronic tonsillitis, they write: "In each of these ten cases the clinical symptoms for which they originally came to the hospital have disappeared." And again: "The general appearance of the cases, which had two complete series of treatment was that they (the tonsils) had shrunken to normal size and no further treatment was necessary." To these I would add six cases of my own. One of these was treated entirely by the roentgen rays, one by radium alone and four by a combination of the two modalities. In every case the results have been all that could be desired.

The result of the new treatment will begin to be observed in from two to four weeks after the first treatment and will continue for at least six months. Briefly, we may expect a reduction or disappearance of the pharyngeal tonsil, an increase of the space between the pillars of the fauces, and a gradual disappearance of the symptoms, followed by a sense of well being. Usually the patient himself is the first to observe the change. He will tell you that his throat is larger; that he swallows better; that he is not troubled so much with sore throat. In one of my cases, a gentleman aged 51, the result has been most remarkable. Tonsils meeting each other in the midline and almost completely closing the pharynx, possibly an inch and a quarter in diameter, have been reduced to less than one-quarter of their former diameter. In another case, that of a young lady, in whom upon one side there was a ragged mass, the tonsils have practically disappeared and large knots to be felt upon either side of the neck are almost gone. In a case treated only once by radium, where surgical intervention was not to be considered on account of a previous nephrectomy and a maxillary sinusitis, the patient promptly re-

covered. The tonsils have a natural size and appearance. But the patient reported that following the application of the radium her rheumatoid condition was aggravated. She felt the usual pain accompanying a tonsillitis. In one or two cases some dryness of the throat resulted temporarily, only to yield in a few days. In short, strange as it may appear, the new treatment, clinically considered, seems to possess few or no drawbacks.

This last statement, however, naturally calls into question the permanent riddance of the tonsil from the streptococcus hemolyticus. Thus Murphy, Witherbee, Craig, Hussey and Sturm report that "thirty-six of forty individuals showed hemolytic organisms to be present. Of these seven became negative one week after treatment, fourteen after two weeks, eight after three weeks, and one after four weeks, making a total of thirty of the thirty-six treated cases which became negative." Hickey reports a series of diphtheria carriers treated by him in connection with the health department of Detroit. "We found that there were nineteen throat cases treated, with a definite cure of fifteen. This gives a percentage of seventy-nine." He continues: "We can, therefore, summarize as follows: In untreated cases of diphtheria carriers, thirty-four per cent of spontaneous cures; cases treated with mercurochrome, sixty-eight per cent of cures; pharyngeal cases treated by the roentgen rays, eighty per cent of cures." Waters, McCready and Hitchcock, on the other hand, report that in eight cases treated, seven were found to harbor the hemolytic streptococcus.

The technique employed varies somewhat with the individual operator. Thus Witherbee and his associates began their work with an 8 inch spark gap, 5 milliamperes of current, a 10 inch distance between the target and highest portion of skin, a filter of 3 mm. of aluminum and sittings varying from three to seven minutes. In his later work Witherbee uses a 7 inch spark gap with an exposure of three minutes and eighteen seconds, the other factors remaining the same, treatments being given every two weeks. Waters and his associates, on the other hand, use a technique employing a 7 inch spark gap, 5 milliamperes of current, a 10 inch target-skin distance, filtered through 4.5 mm. of glass and ½ inch of orthopedic felt. Two exposures are given every week for four treatments, or one series; and another series three or four weeks later. Simpson, who has done all of his work with radium, advises the use of the double strength placque, or 30 milligrams of radium, applied directly to the tonsil for one hour. In a personal communication he writes: "We have any number of tonsil cases and are using my placque in some few while in others we are inserting the emanation seeds. We find that the latter give more of a reaction here than does the radium placque."

Following the original technique of Witherbee and his co-workers, the roentgen rays are applied directly over both sides of the neck just below the angle of the jaw, care being taken to protect the parotid gland. I use a spark gap of 8 inches, 5 m.a. of current, a target-skin distance of 10 inches, a filter of 4 mm. of aluminum and a layer of chamois skin, and a time of four minutes. These treatments are repeated every two weeks for about eight times. In the meanwhile radium is applied directly to the tonsil. Following the technique suggested by Cameron, I use a special applicator of brass, in which 50 milligrams of radium are placed, this, in turn, being covered with rubber. These treatments last from one to two hours. No appreciable reaction has occurred. In my cases no second application has been found necessary. It will thus be seen that only the gamma rays are employed and, as the radium is applied inwardly and the roentgen rays externally, a very desirable system of cross fire irradiation has been obtained. Of the two modalities, if only one could be used, I should prefer the roentgen ray, as its application is attended by no discomfort and the glands of the neck are irradiated at the same time as the tonsils.

It will be seen that the treatment as outlined and employed by the various workers is devoid of danger. In the cases treated by Witherbee and myself there has been no reaction. This is as it should be, for the amount of irradiation employed at any one time is less than one-third of any erythema dose. Water's technique is somewhat more extended, yet, he reports that he has observed nothing more than a mild erythema. Nor does the amount of radium irradiation give rise to unpleasant symptoms; the only discomfort is at the time of the application. If we adopt the rule that 100 milligram-hours of the beta rays of radium are sufficient to obtain a mild erythema or 600

milligram-hours of gamma irradiation, it will be observed that no reaction is to be expected. Personally, I have applied 50 mgs. of radium as screened above to the throat for a total of twelve hours in three days for a carcinoma, with a promising result and no untoward symptoms.

To conclude: We have in the roentgen rays and radium a highly effective method for the treatment of diseased tonsils. A marked improvement and a clinical cure should be obtained in almost every case. The patient will suffer no loss of time or other inconvenience. Even in those cases in which no result has been obtained, no harm has been done and surgical intervention can still be considered.

Bibliography.

Royster, H. A. The Three T's. Personal communication.

Wessler and Jaches. Clinical Roentgenology of Diseases of the Chest, Troy, 1923. P. 228.

Murphy, Witherbee, Craig, Hussey and Sturm, J. A. M. A. January 22, 1921.

Witherbee, W. D. Amer. Jour. Roentgenology. January, 1921.

Murphy, Witherbee, Craig, Hussey and Sturm, Jour. Experimental Medicine, 1921, No. 6, pp. 851-882.

Waters, McCready and Hitchcock. Amer. Jour. Roentgenology, IX, No. 8, August, 1922, pp. 469-478.

Witherbee and Remer, X-day Dosage, New York. 1922, pp. 44-48.

Hickey, P. M. Amer. Jour. Roentgenology, Vol. IX., No. 5, pp. 319 to 321.

Simpson, C. A. Paper at mid-summer meeting of Radiological Society of N. A., January 3, 1921.

Simpson, C. A. Personal communication.

Cameron, W. H. Personal communication.

204 *Spratley Building.*

Discussion.

Dr. Clarence Porter Jones, Newport News: Dr. Hunter is very enthusiastic, as is his usual custom; he is always filled with zeal. It is an established fact that careful surgical removal of tonsils under ether in a well appointed hospital is the procedure of choice. Yet there is much good in the radiological treatment of diseased tonsils. There are frequently seen cases in which, from pathological consideration, any anæsthetic, either general or local, is hazardous; such cases are saved and even cured by the rays.

I recall several such cases: one who was rayed over two years ago seems well, free from symptoms and, better still, resulted in the prompt clearing of albumen from the urine, which has not returned; another case was made albumen free about the same time, and improvement was so marked in the general physical condition that an operation under a quarter per cent. novocaine was permissible a year and a half later. Two other cases rayed about a year ago are today symptom free. I unquestionably endorse rays in all tonsil cases when surgery is hazardous.

I congratulate Dr. Hunter for bringing to our attention this subject at this time; above all things, his treatment is free from any danger.

SOME OBSERVATIONS IN THE STUDY OF ENDOCRINOLOGY.*

By J. H. HIDEN, M. D., Pungoteague, Va.

The subject of endocrinology is too broad and complex for me to attempt any full, symmetrical discussion in the length of time alloted to me. My aim, then, is that of suggestion, the stimulation of further thought, and the awakening of your own individual powers in utilizing what you already know. If I succeed in this, it may be of more value than the unloading of a volume of the most approved compilations.

My first observation is a very simple one; namely, that the subject of endocrinology has become one of the most universally popular in the study of medicine, and that this popularity seems to be increasing to an almost fanatical degree. Indeed, it is hardly extravagant to say that this field of study furnishes food for every calibre of intellect, and every degree of culture and taste in the broad universe. For the last two decades its interest has been increasing in almost geometrical progression, until we may now say it is engaging the attention of the reading world. Let me ask, why is this? My answer is, we can usually find in this field of study just what we are looking for; and that is fascinating indeed. For instance, the scientific, scholarly searcher of truth finds here innumerable phases of the most intricate and complex problems upon which he can easily expend his analytical powers. The progressive evolutionist, who is hardly satisfied with the limitations of the "Origin of Species," as presented in Darwin's discussion of "Natural Selection," sees in this field additional conceptions of evolution of a more modern character. The able materialist, who demands a tangible reason in every link of a chain of an argument, sees in it ample support for his fascinating materialism—the "Mechanistic Activation of the Kenetic Drive" (Crile). The religious enthusiast, of the Bryan type, sees in this field of study the antithesis of the dreaded Darwin doctrines, as found in an exaggerated view of the laws of adaptation and the preponderating influences of environment. The commercial frauds, the quacks, the charlatans, the nostrum venders see in this field a most inviting, productive source of information by which they can easily humbug an ever credulous public. Again, the

*Read at the meeting of the Seaboard Medical Association in Newport News, Va., December 4-6, 1923.

shiftless moral degenerate, after reading in the yellow journals sensational articles on the functions of the ductless glands, comforts himself with the thought that after all, courage, manhood, and moral integrity are only the results of the productive influences of the internal secretions. Even the most pronounced coward is relieved of all humiliation when told that the most heroic military acts are now viewed in the light of glandular secretion. Once more, the old, tottering hypochrondriac awakens from his lethargy, reads the absurd claims of the nostrum venders, and sees in it all his glorious "Land of El Dorado." And since the discovery of insulin for pancreatic disease, the indolent epicurean in her obese, bloated condition, looks forward to greater license at a Delmonico's table, groaning with the sweet luxuries of the season. Who can wonder that the field of endocrinology should be universally popular?

All this may appear as a little playful exaggeration; well, perhaps so; but viewed in the light of the sociological changes of modern thought, we have ample support for the substance of these statements. Indeed, the extent and application of the study of the many phases of endocrinology seem too broad and complex for our comprehension, with our present state of knowledge. One of the most striking illustrations of this truth is found in the so-called "Evolution of Human Races in the Light of the Hormone Theory"—subject of Sir Arthur Keith, who, in June, 1922, delivered a notable lecture at the Johns Hopkins University. In this lecture he considered "the racial status and the form of the body as influenced by hormone production." His position was that "the hormones represent the elements of an automatic system for the control of growth," and, in the support of this position, subjects as gigantism, acromegaly and mongolism were dealt with in his discussion. Again, another support of this evolutionary theory comes from Dr. George H. Weaver, of Rush Medical College. In this statement he says: "From the study of cadavers in England, representing the inhabitants that have lived in that land at successive periods during the last 4,000 years, there is a convincing body of evidence that structural changes are taking place in the jaws, palates and faces of a large proportion of the present population of England. A full knowledge of the hormone system of the human body is likely to reveal not only the cause of these structural changes, but also the steps that may have to be taken to combat them." I mention these facts not for any practical help to us as physicians, but simply to emphasize the breadth of study which we may find in endocrinology. And we may go on almost indefinitely, taking up each feature of my present outline, and overwhelm us all with the most complicated problems of the most complex nature, until the whole subject matter of endocrinology may appear to be undergoing a state of evolutionary chaos—the Bolshevism of modern medicine.

Another view of the situation, however, will show a very different picture. Men of practical insight and discriminating judgment have arisen amidst all this evolutionary chaos, and have patiently and faithfully endeavored to clear the atmosphere of these hazy dreams and visionary fancies of the students of sensationalism. By the efforts of such men, little by little, solid, definite information has been culled out of the piles of rubbish and placed upon a solid basis. Indeed, clinical syndromes, laboratory findings, and therapeutical principles have been fairly well established, and these may be of great value to the careful, practical student of medicine. It is to this line of work I will now call your attention.

Let us consider some clinical syndromes of the functional disorders of the separate organs of internal secretion. These, of course, should be studied with such laboratory findings, when possible, as are commonly present in each classification. Under this head the disordered functions of the thyroid represent the most classical syndromes for endocrine study.

Here we have the syndromes of two definite pictures, exophthalmic goiter and myxedema, each of which is easily diagnosed by the fairly well-informed physician; but the ill-defined, intermediate state of each of these conditions often presents a very different problem, even to the skilled, experienced physician. Now, when we consider that we are more familiar with the functions of the thyroid gland than those of any other of the organs of internal secretion, how much more difficult are we likely to find the diagnosis of other endocrine disturbances when their respective syndromes are not well marked? These are herculean problems, and we have to go slowly before we can

develop any degree of skill in endocrine diagnosis.

Now, in this study, as has been so admirably pointed out by Dr. Lewellys Barker, of Baltimore, we should advance in studying the classical syndromes of the disordered function of each separate organ, and have these symptoms well fastened in our minds, before attempting the study generally of the more complex symptom-group of two or more glands of endocrine disturbance. In other words, the more glands involved in the varied symptom-group of endocrine disorder, the more difficult and complex is the diagnostic problem. As we advance moreover, in this line of work, other features will soon present themselves. It should always be borne in mind that the correlative relations of these glandular organs are very intimate, not only in regard to each other, but also in regard to other important organs and structures of the body.

Again, it is well to bear in mind that outside influences oftentimes, if not generally, play an important part in the etiology of endocrine disturbance. This may consist of faulty diet, climatic changes, unhygienic conditions, nervous strain, geographical situations, occupational pursuits, and, perhaps more than almost anything else, focal infections. I am not able in this brief paper to go into the details of these etiological factors in the processes of glandular disorders. It is sufficient to say that we should look in all these etiological factors for the dominant one in a complex disturbance, before settling upon an opinion of the real nature of the case. The question should be asked: is this glandular disorder the primary or secondary cause of ill-health? What is the dominant factor in the case? Now, among the various causative factors of endocrine disorders that I have already mentioned I wish to emphasize the importance of three, especially.

(1) *Focal Infection.* — About eighteen months ago I had a very practical lesson in this course of study. A woman of respectable standing, 50 years of age, suffering with what appeared to be the incipient stage of exophthalmic goiter, applied for medical aid. She was run down, very pale, anemic and nervous, and quite irritable, with weak, disturbed heart, increasing in rapidity; eyes slightly prominent, and a marked enlargement of the thyroid. Upon examination of the throat, the tonsils, though buried, looked suspicious, and the throat was quite sensitive, and the cervical glands slightly enlarged. I insisted that the tonsils should be removed, and she reluctantly consented. In operating, as I freed the tonsils from their pillars, the pus poured out almost as if I had opened an abscess. It is sufficient to say that following the tonsillectomy there was rapid improvement in all the patient's symptoms, and she was soon restored to health, with a rapid diminution of the thyroid enlargement. Indeed, within a few months all enlargement of the thyroid had completely disappeared. Here we had, evidently, a dominant focal infection of a primary character, and the symptoms of what appeared a thyrotoxicosis were only the result of the tonsillar infection.

Now, dismissing this phase of the subject with this illustration, let us pass on to what may be called a correlative influence of an entirely different nature:

(2) *Disordered Nervous System.*—In many cases the sympathetic nervous system often plays an important role. It may even be the dominant, causative factor in a given case of endocrine disorder. This fact has been generally accepted by many eminent physicians who, in the past, based their opinions upon the experiences of mere clinical observations. These clinical evidences, however, were often very convincing in themselves. Of late, it may be noted, we have additional proofs for the correctness of their opinions. Dr. Cannon, the Harvard physiologist, has demonstrated to his own satisfaction that the sympathetic nervous system controls the action of the medullary suprarenal gland as well as the action of the thyroid. Indeed, he has been able to artificially produce many phases of the syndrome of a hyperthyroidism, including tachycardia and a greatly increased metabolic rate, by severing the phrenic and the cervical sympathetic nerves, and joining the cut surface of the phrenic to the peripheral cut end of the cervical sympathetic. This artificial production of the syndrome of a hyperthyroidism certainly harmonizes with the view that a disordered condition of the sympathetic nervous system may often be the causative factor in the etiology of a thyrotoxicosis.

But again, let us come to our third etiological factor in the production of endocrine disorders:

(3) *Faulty Diet.*—Here, in my opinion, we

ought to stop, spend a good deal of time, and do a good deal of careful thinking. It should be emphasized that a faulty, deficient diet is not a mere association of disordered internal secretions, but in many varied cases the dominant cause of the disordered condition. This view is not only supported by the clinical observations of many of our best practitioners and authorities, but by the recent research work of Lieutenant Colonel Robert McCarrison, who has clearly shown from his experiments in India, that certain food deficiencies, as well as a lack of sufficient nourishing food constituents—namely, the vitamins—often produce organic changes in the glands of the endocrine system. For example, iodine deficiency in our food and an excess in edible fat, resulting in free oleic acid in the digestive tract, are often productive of goiter; and again, inanition, it is claimed, produces an enlargement of the suprarenal gland with an atrophy of all the other endocrine organs of internal secretion. Indeed, malnutrition, arising from complete starvation, or such as follows a long course of feeding with a lack of vitamins, is followed with enlargement of the suprarenals, and sometimes that of the pituitary body, with atrophy of all the other endocrine structures. Now, if we could get these facts well digested and incorporated in our thinking, they would often help us out in unraveling many of the perplexing problems of the so-called multi-glandular disorders of the internal secretions.

Time will not allow me to discuss any syndrome of the diseases of the hypophysis cerebri with their varied changes in anatomical formations, or the correlative influences of the gonads upon the nervous system, as well as upon the other organs of endocrine character. It is sufficient to say that this department of study, though full of interest and information, is still imperfectly understood, needing much patient research work before we can give a satisfactory standardization of our knowledge.

In presenting this paper, I have undertaken to emphasize (1) That we have in endocrinology a field of study of the most complex nature, showing innumerable problems of every phase of correlative phenomena, and yet presenting many interesting lessons of practical importance in the diagnosis and treatment of many conditions of ill-health; (2) That we should cautiously and earnestly venture into this field of research with our eyes fully open to the difficulties before us, and with a determination that we gather the gold from the piles of dross in our efforts to serve suffering humanity; (3) That, while we patiently wait for a more perfect standardization of our knowledge of the internal secretions of our bodies in their relation to health, we must ever bear in mind that the actions of these organs, whether in health or disease, are most intimately connected with outside influences, and (4) That while we wait for a broader and more accurate knowledge in this department of science, let us remember that in the last analysis of nearly every form of endocrine disorder, the underlying causative factor in its appearance may be found in some previous disregard of one or more of the general laws of health.

Let us then teach the public how to live; how to eat and what to eat; how to work and how to rest; how to observe the moral and physical laws of health; and we shall soon find a marked diminution in the frequency of the so-called endocrine disorders.

Bibliography.

Crile: Jour. A. M. A., Oct. 22, 1921.
Oschner: General Surgery, Year Book Series, 1922, page 183.
Bassoe: Mental and Nervous Diseases, Practical Medicine Series, 1922, pages 132, 229, 230.
W. B. Cannon: Amer. Jour. Psychiat., July, 1922.
A. J. Carlson: J. A. M. A., July 8, 1922.
Lewellys Barker: Classical Endocrine Syndromes, N. Y. Med. Jour., March 2, 1921.
Cunningham: Gland Transplantations, Practical Medicine Series, page 285-291, 1922.

THE SIGNIFICANCE OF MURMURS IN THE DIAGNOSIS AND PROGNOSIS OF HEART DISEASE.*

By L. E. STUBBS, A. B., M. D., Newport News, Va.
Medical Department of the Elizabeth Buxton Hospital.

It is not the purpose of this paper to enter into a full discussion of the subject of heart murmurs, as such a discussion would lead us too far afield. Nor is it intended to give a didactic description of the various murmurs which we are accustomed to interpret as signifying disease of the different valves. My purpose is to discuss the significance of certain murmurs which are often wrongfully interpreted as organic murmurs, as well as the significance of the true organic murmurs.

*Read at the meeting of the Seaboard Medical Association of Virginia and North Carolina, in Newport News, December 4-6, 1923.

As a justification for this paper on an old and almost threadbare subject, I would call your attention to the large number of cardiac neurotics as a result of the perfectly sincere, but incorrect, opinion of some physician, based upon the finding, during the course of an examination for one purpose or another, of a murmur. During the last three and a half years, a considerable number of such patients have consulted me. Most of these patients have been greatly agitated as to the condition of their hearts and it has been an exceedingly difficult matter to convince them that their hearts really were not diseased, so firmly had the belief to the contrary taken root in their consciousness.

This false interpretation of heart murmurs is probably due to wrong teaching in the medical schools. As late as 1914, it was taught that mitral insufficiency was the most common valvular disease. At the present time, the best teachers of medicine hold no such view, such men as Cabot, MacKenzie, Barker, and Christian believing uncomplicated organic mitral insufficiency to be very rare. They believe the murmur formerly interpreted as meaning mitral insufficiency to be in the vast majority of instances merely a functional or accidental murmur.

As you know, there are two types of murmurs—organic and functional: organic, resulting from lesions affecting the heart valves, functional, not resulting from lesions of the valves. Many of the latter are really physiological in the sense that the hearts exhibiting them show no signs of failure during life, nor can any basis for their occurrence be found after death, by direct examination of the valves. It is not always easy to differentiate between organic and functional murmurs. As a rule, functional murmurs are soft and blowing in character, are often influenced by the phases of respiration, exercise and position, and are usually systolic in time, though these characteristics do not always distinguish them from organic murmurs. To distinguish between these murmurs, the whole circumstance of the case must be taken into consideration. When a systolic murmur is found in a robust individual with no other evidence of cardiac impairment, such as an increase in size, alteration of the heart sounds, unaccompanied by a thrill, and in whose history there can be found after careful inquiry no evidence of any infection which might predispose to disease of the cardiac structures, we may consider it as indicative neither of impairment nor of disease.

Murmurs are very frequently heard when the heart is carefully examined with the chest bare. In going over five hundred of my records I found seventy-seven, or 15.4% in which mention was made of a murmur heard in one location or another. Analysis of these records shows that murmurs were present in many conditions other than heart disease. I have constructed a chart giving the diagnosis and the location of the murmur in each case.

Diagnosis	2nd l. s.	2nd rt. s.	Apex.	Elsewhere	No. of Cases.
Epilepsy	1		2		3
Cardio-Renal	3		15	2	20
Mitral Stenosis and Mitral Regurgitation	0		5	2	5
Pleuritis	1				1
Intestinal Toxemia		1			1
Chronic Pelvic Inflammatory Disease	1				1
No Disease	2		1		3
Diabetes Mellitus	1		1	1	2
Primary Anemia	1				1
Pregnancy				1	1
Toxic Goitre	3	2	3	2	4
Pulmonary Tuberculosis			2		2
Menopause	1	1	2		2
Chronic Nephritis			1		1
Traumatic Neurosis	1				1
Paralysis Agitans	1		1		1
Deep Cervical Adenitis	1		1		1
Cholecystitis		1	1		2
Cerebrospinal Lues		1	2		2
Dilated Colon	1				1
Syphilis	1		1		2
Prostatic Hypertrophy			1		1
Secondary Anemia (Gastric Ulcer)			1		1
Patent Ductus Arteriosus	1	1	1	1	1
Aortic Insufficiency	1				1
Aortic Insufficiency and Mitral Insufficiency	3	2	3	2	3
Cardiac Neurosis	1		2		2
Appendicitis	1		1	1	1
Cholelithiasis	1		3		3
Chronic Tonsillitis	1				1
Acute Gonorrhoea			1		1
Hodgkin's Disease			1		1
Hypertension (Chronic Maxillary Sinusitis)			1		1
Carcinoma of Pancreas				1	1
Pituitary Headache	1		1		2
Total	28	9	54	13	77

Analysis of the above table teaches that, in five hundred unselected cases in seventy-seven

of which murmurs were present, the murmur was indicative of valvular disease in but nine or 11.9%; it was present at the apex in fifty-four (70%), in the second left space in twenty-eight (36% plus) elsewhere in thirteen (17% minus), in the second right space in nine (11% plus), in all of the cases except mitral stenosis and aortic insufficiency the murmur was systolic in time; all of the mitral stenosis patients had also mitral insufficiency; three of the four aortic insufficiency patients had mitral insufficiency as well; not one time was the diagnosis of mitral insufficiency alone made.

In seventy-seven patients showing cardiac murmurs, the murmur was indicative of organic disease of the valve in but nine, or 12%. Thus it would seem that we are justified in concluding that functional murmurs are much more frequent than organic murmurs. Such a murmur may be present in debilitated individuals from a variety of causes, being then but one of many symptoms which the patient may exhibit, the diagnosis of its cause necessitating a painstaking search for other evidences which may throw light upon the cause of the disability.

According to Ebstein, the heart in its normal action is governed by the five following physiological factors: "stimulus production, excitability, conductivity, contractility, and tonicity. As is the case with skeletal muscles, the heart muscle is always in a state of tonus, never relaxing entirely, even in diastole, always maintaining a certain amount of tonic contraction. Any local or general disorder which will lower the physiological function of tonus will give rise to a condition of atonia cordis. Under these circumstances the heart muscle is unable to contract forcibly during systole and is unduly relaxed during diastole. There may be even a certain amount of residual blood in the ventricles after cardiac contraction. With each impact of blood during systole, the relaxed heart and its valves vibrate, and there may be a slight regurgitation which may give rise to a systolic murmur which is best termed a functional murmur, since it is the result of some alteration in function, namely tonicity." This does not signify inherent disease of the heart, some other factor being at fault. Ebstein explains many murmurs heard on this basis.

In three of the above series, no disease could be found after careful search, and in several others by no stretch of the imagination could the heart murmur be attributed to the condition found. This is in line with the teachings of MacKenzie, who says that he has often watched patients showing heart murmurs for years without at any time finding evidence of disease of the cardiac structures.

Of twenty patients with cardiorenal disease and associated hypertension, fifteen showed systolic murmurs at the apex. Most of these hearts were decompensated but the decompensation was not due to valvular disease, rather to the disease of the myocardium or to excessive work of the myocardium in carrying on the circulation against the high pressure. In these cases the hearts are usually greatly dilated, the valve rings partaking of the dilatation. The closure of the orifices under these conditions is thus rendered impossible and a relative valvular insufficiency results. In many of these cases, as the dilatation is relieved and compensation is restored, the murmurs disappeared, indicating their origin to be muscular rather than valvular. True from a functional standpoint the same conditions are present, namely a regurgitation of blood. But if the diagnosis of organic valvular disease be made, autopsy findings will not bear us out.

In acute disorders, especially during or just after the subsidence of an acute infectious disease, it is very important to differentiate between functional and organic murmurs both from the standpoint of prognosis and as an aid in caring for the patients during convalescence. Here, as in other circumstances, a correct opinion can be formed only after due consideration of all of the evidence at our command.

Next let us consider the so-called organic murmurs. What is their significance? Organic murmurs have a varied significance, depending upon the lesions they indicate. First of all, it is important to remember that though heart murmurs are often associated with decompensation, yet the valvular lesions which they indicate are not in most instances the cause of the heart failure. Again it is well to keep in mind that individuals with true organic valvular disease due to some infectious process may lead vigorous lives and never show any signs of heart failure. Therefore, murmurs should be considered from a prognostic standpoint after attention has been paid to all of the circumstances of the case.

At times a systolic murmur is audible over the sternum at the level of the third and fourth

costal cartilages and not propagated. This murmur often means tricuspid insufficiency. This is at times a normal characteristic, John Hunter, quoted by MacKenzie, having reported years ago that a certain amount of tricuspid insufficiency is physiological in many cases, the size of the valves being insufficient to close the orifice. The significance of tricuspid insufficiency has been altogether over-rated owing to the back-pressure theory of heart failure in which the insufficiency of the tricuspid valves was looked upon as being the last stages of the decompeusation. MacKenzie states that heart failure is never due to this condition alone but to disease of other valves and of the myocardium. If the case be studied carefully, it will be seen that the onset of decompensation is coincident with the onset of auricular fibrillation, which can be proven by jugular tracings where the wave due to auricular contraction will be seen to disappear, indicating the beginning of fibrillation of the auricles. True organic disease of the tricuspid valves, either as insufficiency or stenosis, is rare. Usually other valves are involved and the symptoms which result are most often due to this involvement. This murmur is mentioned not so much from the standpoint of its bearing upon the patient's health as because it is sometimes wrongfully interpreted by the examiner.

The systolic murmur heard best at the apex, indicating organic mitral insufficiency, is of little importance unless the muscle be impaired. Under these conditions the regurgitation of blood may lead to serious embarrassment of the impaired muscle, though few if any symptoms will occur until the muscle gives away. As stated above, uncomplicated organic mitral insufficiency is a relatively rare condition and was not diagnosed in a single instance reported. Relative mitral insufficiency was present in fifteen of twenty cardiorenal cases with hypertension and cardiac decompensation, though in all probability in none of these was organic disease of the mitral valve present, the regurgitation being due to dilatation of the orifices in common with dilatation of the left ventricle. It was present in all five of the mitral stenosis patients observed. From a consideration of the opinions of the leading cardiologists, it would seem that uncomplicated organic mitral insufficiency is rare and, when it does occur, is not of serious import unless the muscle be at the same time involved. If the diagnosis of organic mitral insufficiency be made, we must be sure that we are not overlooking an associated mitral stenosis. The murmur of mitral stenosis may be easily missed. It can, however, often be brought out by exercise, the assumption of a slightly stooped posture, or by a whiff of amyl nitrite.

The pre-systolic murmur of mitral stenosis has a different significance, mitral stenosis being the commonest valvular lesion with which heart failure is associated. This is readily understood when it is remembered that this lesion usually arises in scar tissue and that this cicatrizing process progresses with varying rapidity, so that prognosis is uncertain, though it is almost certain that sooner or later decompensation will occur. The interval elasping before the occurrence of this event will depend upon the rate of progress of the cicatrizing process. Again, the resistance of the valvular structures is lowered, owing to the scar tissue, and recurring attacks of low grade endocarditis are frequent. These still further compromise the competency of the valves. We should not, however, be too pessimistic in our prognosis, as mitral stenosis may be compatible with long life, with litttle or no handicap, provided the process be quiescent. But one of five cases examined had ever had a period of decompensation at the ages of twenty-nine, ninteen, fourteen, twenty-six, and forty-two years. This patient died suddenly a few months later of a probable embolus. While in the army as cardiovascular examiner, I observed several patients with well marked mitral stenotic lesions who had never been handicapped in the least, most of them having been overseas where they had done full duty and had withstood all of the attending deprivations and hardships without symptoms. It was only during routine physical examinations following influenza, that the cardiac lesions were discovered and not because of symptoms referable to the heart.

Just as the sclerotic process tends to progress in the endocardium, so it also progresses in the myocardium which after all is the really serious aspect of this condition. The integrity of the myocardium and of the auricular ventricular bundle is interfered with and auricular fibrillation results.

From a prognostic standpoint then, we feel that mitral stenosis is a serious lesion: just how serious depends upon the rapidity of the sclerotic process in the valves and myocardium.

but especially the latter. If this be slow or non-progressive, the prognosis is relatively good: if rapid and progressive, the patient's life becomes one of great limitations.

A rough systolic murmur heard best in the first and second spaces on the right, and accompanied by a thrill, which is also heard in the great vessels of the neck usually means aortic stenosis. This condition usually occurs in elderly people in whom there is a history of syphilis. It was not observed in any of the cases reported in this paper. I saw while in the army one case exhibiting all of the classical findings of this lesion though he had never been aware of having trouble with his heart while working at his occupation as a farmer. MacKenzie states that in itself aortic stenosis rarely leads to embarrassment of the circulation, but that the aortic insufficiency, which oftener than otherwise is associated, dominates the picture.

Patients with aortic insufficiency usually come in during middle life, the sclerotic process having progressed during earlier years, thus exhausting the reserve force of the heart, the earlier symptoms of this exhaustion having been ignored. In the text-book description of the murmur indicating this lesion, it is said to be best heard in the second right space. This is true of the late cases in which the diagnosis is easily made by the concomitant symptoms, even without examination of the heart. But in the early cases, before much hypertrophy has occurred, the murmur is best heard in the second and third left spaces. It is very easily missed at this time unless we have the patient exhale deeply and hold his breath, after which the murmur is often audible when it would otherwise not be heard. Aortic insufficiency was diagnosed in four of the nine organic volvular diseases, in three of which it was accompanied by mitral insufficiency. This lesion is of somewhat serious import, its seriousness depending largely upon the condition of the heart muscle. However, when decompensation does occur, it is more serious than in any other valvular disease. This is especially true when auricular fibrillation sets in, signifying as it does grave disease of the myocardium.

On the other hand, serious disease of the heart may be present without a murmur, owing to extreme weakness of the heart muscle. As the muscle improves, a murmur may appear, if definite organic disease of the valves be present, or a murmur present may disappear as the valvular orifices contract with the better contraction of the ventricles. At times physicians say that no organic disease is present because no murmur is heard. This is a grievous error since in some of the most seriously diseased hearts no murmur may ever be heard. This is especially true in some of the hearts giving anginal symptoms. Often in these cases careful examination fails to reveal objective findings of cardiac involvement.

Summarizing, I would say that this paper finds its justification in the large number of cardiac-neurotics resulting from misinterpretation of a murmur heard over some portion of the heart. This false interpretation is probably due to the recent teachings as to the frequency of mitral insufficiency in which it was described as being the most frequent valvular lesion. That this is erroneous has been shown by the experiences of the leading cardiologists during more recent years.

A short description is given of functional and organic murmurs, and an analysis of seventy-seven patients showing murmurs at one point or another. This analysis demonstrates that organic murmurs were present in but 11.9% and functional murmurs in 88.1%: that this murmur was present at the apex in 70%, in the second left space in 36%, elsewhere in 17%, and in the second right space in 11%. All of the functional murmurs were systolic in time.

A basis is given for certain of the functional murmurs which are heard in debiltating conditions.

In fifteen of twenty cardiorenal patients with hypertension, systolic murmurs were present at the apex, but the opinion is expressed that the decompensation is due to muscle failure rather than to any valvular disease.

The significance of certain of the organic valvular lesions is given with reasons for the varying prognoses.

Serious heart impairment may be present without the presence of a murmur.

Concluding, it may be said that organic murmurs have a varying significance, to arrive at which we must determine as far as possible whether the damage done by the disease process is stationary or progressive, and whether the disease has affected and impaired the heart muscle as well: whether the disease of the valve is such as to obstruct the work of the

heart and to impair the efficiency of the muscle.

The field of cardiac response to effort is the only true and safe guide, being as it is an indication of muscle efficiency. Decompensation, when it does occur, is the result of muscle weakness rather than of valvular disease. As MacKenzie has so well put it "The presence of a murmur has so oppressed the profession that a vast amount of harm is continually being done patients by an imperfect understanding of the prognostic significance of this sign."

To make a correct diagnosis and prognosis, we must not be biased by any one abnormal sign but must take into consideration, after careful observation, every sign and accompanying circumstance before arriving at final conclusions.

Thirty-first Street and West Avenue.

OBSTETRICS IN LITERATURE.

By M. PIERCE RUCKER, M. D., Richmond, Va.

Madame President and Ladies of the Happy Valley Current Events Club:

I feel greatly complimented that you should have asked me to address your club upon some matters pertaining to Obstetrics, but I find myself greatly embarrassed for two reasons. In the first place, many of you know a great deal more, at least subjectively, about obstetrics than I can ever hope to know, and in the second place, until recently, it has not been customary to discuss my specialty in public except in medical meetings. The result is that there has not been sufficient time to develop a phraseology altogether suitable for such a gathering as this. I am still further handicapped because I have thought and dreamed so much about obstetrics that I fear I have become a poor judge of what is proper to discuss before such an audience. To be perfectly safe, and certain of not giving offense, I have decided to confine my remarks to those cases of obstetrics that are to be found described in the best English Literature, quoting verbatim, and adding only such notes as may be necessary to emphasize the obstetric aspect of the case.

I wish to direct your attention first to the thirty-fifth chapter of Genesis, sixteenth to nineteenth verses. "And they journeyed from Bethel; and there was but a little way to come to Ephrath: and Rachel travailed, and she had hard labour. And it came to pass, when she was in hard labour, that the midwife said unto her. Fear not; thou shalt have this son also. And it came to pass, as her soul was in departing, (for she died) that she called his name Ben-oni; but his father called him Benjamin." Here we have the earliest description of labour, if we except that of the birth of Eve, which according to Sir James Y. Simpson is the only case of male parturition that has ever occurred. It is said that when Sir James Y. Simpson was taken to task for his introduction of ether and chloroform into obstetrics he replied that, when the Lord took Eve out of Adam's side, He put him in a deep sleep. But to get back to Rachel's case, you are struck at once with the beautiful description. There is not an unnecessary word. The whole picture stands out before you, the midwife encouraging the patient, telling her it will be a boy, the patient worn out and exhausted with suffering, convinced that she is going to die, and with her dying breath naming the child Ben-oni, which means "the son of my sorrow," and finally, the arrogance of the father who says that the suffering was of no consequence, "I will change his name to Benjamin."

When a medical mind is confronted with such a catastrophe, the first concern is to ascertain the cause. Among the usual causes for death during labour or immediately after it—pulmonary embolism, edema of the lungs, eclampsia, hemorrhage, and rupture of the birth canal—the latter is the only one that needs be considered. Evidently there was neither hemorrhage nor convulsions. The patient conversed to the very end, and there seemed to be no marked dyspnoea as you would expect had there been any pulmonary complication. On the other hand, the patient should have been in excellent physical condition, having led an active outdoor life from early childhood, and at the time she was taken in labour she was engaged in a journey that required a certain amount of physical fitness. At her previous delivery, no mention is made of any difficulty. The chances are that an over-size child or a mal-position was the cause of the dystocia. Such cases were formerly ascribed to shock, but a careful autopsy usually reveals a rupture somewhere in the birth canal.

For the second case let us turn to that ancient historian, Flavius Josephus. In the ninth chapter of the second book of the "Antiquities of the Jews," it is related how the King of Egypt was greatly perturbed by a prophecy of one of the sacred scribes, to the effect "that

about this time (1616 B. C.) a child would be born to the Israelites; who, if he was reared, would bring the Egyptian dominion low, and would raise the Israelites; that he would excel all men in virtue, and obtain a glory that would be remembered through all ages." The King, therefore, commanded that every male child born to the Israelites should be cast into the river and destroyed and, to enforce this order, he appointed Egyptian midwives to watch the labours of the Hebrew women. About the same time a vision came to "Amram, one of the nobler sort of the Hebrews" that the child of whom the King was afraid would be born to him. "When the vision had informed him of these things, Amram awakened and told it to Jochebed, his wife; and now the fear increased upon them, on account of the prediction in Amram's dream, for they were under concern, not only for the child, but on account of the happiness that was to come to them also. However, the mother's labour was such as afforded a confirmation to what was foretold by God: for it was not known to those who watched her by the easiness of her pains, and because the throes of her delivery did not fall upon her with violence; and now they nursed the child at home privately for three months. But after that time, Amram fearing he should be discovered," etc. Then follows the famous episode of Moses in the bulrushes. How different is this case from the preceding one! There are two features that stand out. One is the ease of the labor, so easy that the midwives who were appointed to spy upon the labors of the Hebrew women were deceived. The second is that the baby was so quiet and well behaved that he could be concealed about the home for three months. To the Hebrew parents it appeared to be an especial dispensation from God in order that Moses might be reared to outwit the Egyptions. We now know that both of these features, the easy labour and the good baby, are interdependent one upon the other. The easy labor precludes damage to the head, and an undamaged brain insures a quiet contented child so long as he is well fed. Thus 1,600 years before Christ, Jehovah, when he wanted a leader for Israel, used the very ideals that we strive to obtain in our modern obstetrics.

For our next case let us turn to primitive Britain. In King Arthur's time the people were just emerging from a state of savagery, "White Indians," Mark Twain called them. Their castles, while often large and imposing, were little more than window-pane-less fortifications. Their furniture was chiefly banquet boards and benches, nothing but a hardy race could have lived in such places. The birth of Tristram is related in the first chapter of the eighth book of Malory's LeMorte D'Arthur as follows: "When Elizabeth, King Meliodas' wife, missed her lord, and she was nigh out of her wit, and also as great with child (her first) as she was, she took a gentlewoman with her, and ran into the forest to seek her lord. And when she was far in the forest she might no further, for she began to travail fast of her child. And she had many grimly throes: her gentlewoman helped her all that she might, and so by miracle of Our Lady of Heaven she was delivered with great pains. But she had taken such cold for the default of help that deep draughts of death took her, that needs she must die and depart out of this world, there was none other bote. And when this Queen Elizabeth saw that there was none other bote, then she made great dole."

It is hardly probable that the "cold" was the cause of death. The untrained gentlewoman was likely misled by the post partum chill that often occurs at this stage and has no significance. The description is not accurate enough for us to hazard even a guess as to the immediate cause of the death. It was attended by great "dole," and might have been pulmonary embolism or edema. Tennyson throws no further light upon this subject. The only reference to parturition that I have been able to find in his work is that which appears to have been a post-mortem delivery, when Vivian says:

> "My father died in battle against the King
> My mother on his corpse in open field;
> She bore me there, for born from death was I
> Among the dead and sown upon the wind."

Southey reports another case of primitive obstetrics in his Tale of Paraguary, canto 1:27. The entire tribe with the exception of Quiara and Monnema had been destroyed by smallpox. The pair fled into the swamp and made their abode beside the sluggish Mondai.

> "The Moon had gathered oft her monthly store
> Of light, and oft in darkness left the sky,
> Since Monnema a growing burden bore
> Of life and hope. The appointed weeks go by;
> And now her hour is come, and none is nigh
> To help: but human help she needed none.

A few short throes endured with scarce a cry,
Upon the bank she laid her newborn son,
Then slid into the stream, and bathed, and all was done."

The bath may have been natural or poetic under the circumstances, but was probably responsible for a saprophytic infection. For it is related that it was five years before another child was born although they continued to live in primal happiness. Quiara, the husband, had to forego the customary *couvade*, because there was no one else to supply the family with food.

While we are on the subject of poets, it is interesting to note that Lord Byron suffered from an intercranial hemorrhage received at birth. At least, this is the opinion of the eminent London pediatricians, Cameron and Osman. Unfortunately, I can find no account of his birth, other than that he was the first child.

Our fifth case is found in modern history. It is to be regretted that the births of very few great men are described. William Mulligan Sloane in his Life of Napoleon Bonaparte gives some account of the birth of that genius. The great Napoleon was the fourth child. The first child, a boy, died in infancy; the second, a girl, died in infancy; the third, a son, survived; and the fourth was Napoleon. "There is a myth that his mother was taken in labor while at Mass and reached her chamber just in time to deposit, on a piece of embroidery representing the young Achilles, the prodigy, bursting so impetuously into the world." The piece of embroidery is probably a concession to the widespread belief in maternal impression, but the ease of his delivery is supported by his subsequent career.

I was surprised not to find more cases of tuberculosis and pregnancy. It is not an uncommon occurrence, and offers such dramatic possibilities. The Professor at the Breakfast Table gives a poetical description of what is probably such a case, when he describes the death of the Latin Tutor's wife. (The subsequent career of the tutor certainly supports such an assumption). "The poor lady, seated with her companion at the chess-board of matrimony, had but just pushed forward her little white pawn upon an empty square, when the Black Knight, that cares nothing for castles, or Kings, or Queens, swooped down upon her and swept her from the larger board of life."

For our seventh case let us turn to fiction, portraying as it does conditions and customs more truly than does history. Shortly after David Copperfield's mother had been "conveyed upstairs to her own room with all speed," the doctor and the nurse arrived and found the austere aunt in the parlor. But let David Copperfield himself tell it. "Those allied powers were considerably astonished, when they arrived within a few moments of each other, to find an unknown lady of portentous appearance sitting before the fire, with her bonnet tied over her left arm, stopping her ears with jeweller's cotton. Peggotty, knowing nothing about her, and my mother saying nothing about her, she was quite a mystery in the parlor; and the fact of her having a magazine of jeweller's cotton in her pocket, and sticking the article in her ears in that way, did not detract from the solemnity of her presence."

"The doctor having been upstairs and come down again, and having satisfied himself, I suppose, that there was a probability of this unknown lady and himself having to sit there, face to face, for some hours, laid himself out to be polite and social. He was the meekest of his sex, the mildest of little men. He sidled in and out of a room, to take up the less space. He walked as softly as the Ghost in Hamlet, and more slowly. He carried his head on one side, partly in modest depreciation of himself, partly in modest propitiation of everybody else. It is nothing to say that he hadn't a word to throw at a dog. He couldn't have *thrown* a word at a mean dog. He might have offered him one gently, or half a one or a fragment of one; for he spoke as slowly as he walked; but he wouldn't have been rude to him, and he couldn't have been quick with him, for any earthly consideration."

"Mr. Chillip, looking mildly at my aunt with his head on one side, and making her a little bow, said, in allusion to the jeweller's cotton, as he softly touched his left ear: 'Some local irritation Ma'am?'

"'What!' replied my aunt, pulling the cotton out of one ear like a cork.

"Mr. Chillip was so alarmed by her abruptness—as he told my mother afterwards—that it was a mercy he didn't lose his presence of mind. But he repeated sweetly:

"'Some local irritation ma'am?'

"'Nonsense!' replied my aunt, and corked

herself again, at one blow.

"Mr. Chillip could do nothing after this, but sit and look at her feebly, as she sat and looked at the fire, until he was called upstairs again. After some quarter of an hour's absence, he returned.

"'Well?' said my aunt, taking the cotton out of the ear nearest to him.

"'Well, ma'am;' returned Mr. Chillip, 'we are progressing slowly ma'am.'

"'Ba-a-ah!' said my aunt, with a perfect shake on the contemptous interjection, and corked herself as before.

"Really—really—as Mr. Chillip told my mother, he was almost shocked; speaking in a professional point of view alone he was almost shocked. But he sat and looked at her notwithstanding, for nearly two hours, as she sat looking at the fire, until he was again called out. After another absence, he again returned.

"'Well?' said my aunt, taking out the cotton on that side again.

"'Well, ma'am,' returned Mr. Chillip, 'We are—we are progressing slowly ma'am.'

"'Ya-a-ah!' said my aunt. With such a snarl at him, that Mr. Chillip absolutely could not bear it. It was really calculated to break his spirit, he said afterwards. He preferred to go and sit upon the stairs in the dark and strong draught, until he was again sent for."

"Ham Peggotty, who went to the national school, and was a very dragon at his catechism, and who, therefore, may be regarded as a credible witness, reported next day, that happening to peep in at the parlor door an hour after this, he was instantly described by Miss Betsy, then walking to and fro in a state of agitation, and pounced upon before he could make his escape. That there were now occasional sounds of feet and voices overhead which he inferred the cotton did not exclude, from the circumstances of his evidently being clutched by the lady as a victim on whom to expend her superabundant agitation when the sounds were loudest. That, marching him constantly up and down by the collar (as if he had been taking too much laudanum), she, at those times, shook him, rumpled his hair, made light of his linen, stopped *his* ears as if she confounded them with her own, and otherwise tousled and maltreated him. This was in part confirmed by his aunt, who saw him at half-past twelve o'clock, soon after his release, and affirmed that he was then as red as I was."

"The mild Mr. Chillip could not bear malice at such a time, if at any time. He sidled into the parlor as soon as he was at liberty, and said to my aunt in his meekest manner:

"'Well, ma'am, I'm happy to congratulate you.'"

* * * * *

"I was born on a Friday at twelve o'clock at night. It was remarked that the clock began to strike, and I began to cry, simultaneously. In consideration of the day and hour of my birth, it was declared by the nurse, and by some sage women in the neighborhood that had taken a lively interest in me several months before there was any possibility of our becoming personally acquainted, first that I was destined to be unlucky in life, and secondly, that I was privileged to see ghosts and spirits."

"I was born with a caul, which was advertised for sale, in the newspapers, at the low price of fifteen guineas. Whether seagoing people were short of money at that time, or were short of faith and preferred cork jackets, I don't know;" but "ten years afterwards the caul was put up in a raffle down in our part of the country, to fifty members at half-a-crown a head, the winner to spend five shillings. I was present myself, and I remember to have felt quite uncomfortable and confused, at part of myself being disposed of in that way."

I have quoted rather extensively from the autobiography of David Copperfield not only because it is interesting to know that he was born without rupturing the membranes, but chiefly because the account illustrates so well, many of the customs and superstitions connected with child-bearing.

I fear I weary you with these cases but I can not refrain from citing, in conclusion, one more case, done in the best rococo English. Bear with me just a few moments while I quote from the first chapter of Oliver Twist. "Among the other public buildings in a certain town, which for many reasons it will be prudent to refrain from mentioning, and to which I will assign no fictitious name, there is one anciently common to most towns, great or small: to wit, a workhouse; and in this workhouse was born, on a day and date which I need not trouble myself to repeat, inasmuch as it can be of no possible consequence to the reader, in this state of the business at all events, the item of mor-

tality whose name is prefixed at the head of this chapter.

"For a long time after it was ushered into this world of sorrow and trouble, by the parish surgeon, it remained a matter of considerable doubt whether the child would survive to bear any name at all; in which case it is somewhat more than probable that these memoirs would never have appeared; or if they had, that being comprised with a couple of pages, they would have possessed the inestimable merit of being the most concise and faithful specimen of biography extant in the literature of any age or country.

"Although I am not disposed to maintain that the being born in a workhouse, is in itself the most fortunate and enviable circumstance that can possibly befall a human being, I do mean to say that in this particular instance, it was the best thing for Oliver Twist that could by any possibility have occurred. The fact is, that there was considerable difficulty in inducing Oliver to take upon himself the office of respiration, a troublesome practice, but one which custom has rendered necessary to our easy existence; and for some time he lay gasping on a little flock mattress, rather unequally poised between this world and the next: the balance being decidedly in favor of the latter. Now, if during this period, Oliver had been surrounded by careful grandmothers, anxious aunts, experienced nurses, and doctors of profound wisdom, he would most inevitably and indubitably have been killed in no time. There being nobody by, however, but a pauper old woman, who was rendered rather misty by an unwonted allowance of beer; and a parish surgeon who did such matters by contract; Oliver and nature fought out the point between them. The result was, that, after a few struggles, Oliver breathed, sneezed, and proceeded to advertise to the inmates of the workhouse the fact of a new burden having been imposed upon the parish, by setting up as loud a cry as could reasonably have been expected from a male infant who had not been possessed of that very useful appendage, a voice, for a much longer space of time than three minutes and a quarter.

"As Oliver gave this first proof of the free and proper action of his lungs, the patchwork coverlet which was carelessly flung over the iron bedstead, rustled; the pale face of a young woman was raised feebly from the pillow; and a faint voice imperfectly articulated the words, 'Let me see the child, and die.'

"The surgeon had been sitting with his face turned towards the fire; giving the palms of his hands a warm and rub alternately. As the young woman spoke, he rose, and advancing to the bed's head, said with more kindness than might have been expected of him:

"'Oh, you must not talk about dying yet.'

"'Lor bless her dear heart, no!' interposed the nurse, hastily depositing in her pocket a green glass bottle, the contents of which she had been tasting in a corner with evident satisfaction. 'Lor bless her dear heart, when she has lived as long as I have, sir, and had thirteen children of her own, and all of them dead except two, and them in the wurkus with me, she'll know better than take on that way, bless her dear heart! Think what it is to be a mother, there's a dear young lamb, do.'

"Apparently this consolatory prospective of a mother's prospects failed in producing its due effect. The patient shook her head, and stretched out her hand toward the child. The surgeon deposited it in her arm. She imprinted her cold white lips passionately on its forehead; passed her hands over her face: gazed wildly around; shuddered; fell back and died. They chafed her breast, hands and temples; but the blood had stopped forever."

Dickens' shrewd comment upon the methods of handling asphyxiated babies is worthy of emphasis. Nothing is told of the mother except that she was unmarried, and had been found on the street the night before, poorly clad, cold and exhausted. One of any number of things may have been the cause of her death. I do not see how you can rule out pneumonia. A great number of women lost their lives in just this way in the great "flu" epidemic.

In conclusion, I wish to say that while the maternal results in this series are not flattering, there being a mortality of fifty per cent, yet the results from the standpoint of the infants is all that could be wished for. The great fame to which at least two of the babies attained, in the eyes of some at least, more than compensates for the loss of the four mothers.

Discussion.

Question. (By the President). Does not Shakespeare give some instance of this kind?

Answer. The great Bard of Avon does not report a single case. That he was familiar with the signs and symptoms of pregnancy and its surgical treat-

ment is shown by a number of extremely apt references. He speaks, for instance, of the compensasatory rearing of the shoulders and head incident to the disturbance of the center of gravity when the patient is on her feet, as the "pride of pregnancy" and as you know Macduff was "from his mother's womb untimely ripped."

Medical Arts Building.

THE TREATMENT OF THE TOXEMIAS OF PREGNANCY.*

By GREER BAUGHMAN, M. D., F. A. C. S., Richmond, Va. Professor of Obstetrics, Medical College of Virginia; Visiting Obstetrician, Stuart Circle, Memorial, St. Philip Hospitals.

The toxemias of pregnancy are the most serious complications that the pregnant woman faces. In 1920, I gathered together the statistics from the obstetrical service of the Medical College of Virginia and found that we had nineteen deaths in 2,341 deliveries. Seven of the deaths were due to toxemia, two to sepsis, two to pulmonary tuberculosis, one to miliary tuberculosis, two to lobar pneumonia, one to decompensated heart, one to intestinal obstruction, and one to embolus. In our clinic nearly half of the deaths are due to the toxemias.

If we could prevent the toxemias our death rate for the pregnant woman would be reduced about one-half.

The question of prevention is tremendously important but will not be discussed in this paper. Frequent contact with the prospective mother, giving thoughtful attention to her complaints, using the average amount of medical knowledge in correcting her tendencies, and taking her freely into our confidence when we have found any suspicious symptoms, will generally get good results.

We will confine our attention to the discussion of the treatment of vomiting of pregnancy, pre-eclampsia, eclampsia and nephritis in pregnant women.

Vomiting of Pregnancy

To my mind the vomiting of pregnancy may be divided into two sorts—the mild and the severe. Toxemia is the background of all; in most cases we have a neurotic element and in a few a reflex cause is added.

I call the case mild as long as acetone and diacetic acid is absent from the urine.

When she is vomiting everything including water, and has acetone and diacetic acid in her urine, I call it severe. When she adds to this a jaundice and we find bile in the urine along with albumen and casts, I regard her as seriously ill, aiming straight for an abortion or death, unless we can stop her in a very few days.

I take ptyalism, certainly nausea and vomiting seriously, and instruct my women to report to me when these things occur. In the mild cases they are instructed to abstain from sexual intercourse, to relieve their constipation with alkalies, milk of magnesia is my favorite, lie down after eating, with an ice bag on the upper abdomen, and to take solid, carbohydrate foods every three or four hours instead of going to the table. They are carefully examined to replace a retrodisplaced uterus and also to eliminate appendicitis, ulcer of the stomach, and many other things that might cause nausea. These are the cases that receive intravenous injections of lutein, the action of which seems to me to be more psychic than real. If they do not improve, I give them an intravenous injection of twenty per cent glucose solution. My attention was called to the injections of large doses of twenty per cent glucose intravenously, by an article by Paul Titus, M. H. Givens and George L. Hoffman in the J. A. M. A., 1920.

When the woman is vomiting a large mass of food and water, when acetone and diacetic acid appear in her urine, I send her to the hospital, keep the family away, starve her for twenty-four hours, get blood for blood sugar estimation, inject through the same needle 250-350 cc. twenty per cent glucose solution, give her five per cent glucose and bicarbonate solution by bowel, after the bowels have been well emptied by an enema. The proctoclysis is repeated every eight hours and the twenty per cent glucose repeated intravenously every twenty-four hours until she is definitely improved. After twenty-four hours of starvation, she is given crackers, toast, cakes, peppermint candy, beaten biscuits, every three hours, with a small quantity of water as a reward. You know you can throw up water easier than you can solids. The cases that respond quickly to this line of treatment are those that start with low blood sugar.

If after a thorough trial of this method she still vomits, acetone and diacetic acid still persist in her urine, casts have not disappeared and albumen can still be found, we abort her.

The average of blood sugar in this series of vomiters was 95, the highest 114, the lowest 76.

*Read before the Norfolk County Medical Society, Norfolk, Va., January 28, 1924.

Pre-eclampsia

Our experience has been that as long as a woman remains pre-eclamptic she has about the same chance of recovery as a normal pregnant woman. The moment she has a convulsion or becomes comatose her chance of death is one in five. Manifestly, it is of the utmost importance that the woman be kept from having convulsions or coma.

A very large number of pre-eclamptics can be saved from convulsions and coma by intelligent treatment. In my private work I have had a large number of pre-eclamptics but only two have had convulsions. The record of our dispensary is almost as good.

Virginia is in a high blood pressure zone, as shown by life insurance statistics compiled by Dr. J. Allison Hodges. Among 2,341 clinical cases, I found an incidence of 2.2 per cent of convulsions. A very few of these had had previous dispensary treatment. Seventy per cent of private and dispensary cases show sometime during their visits albumen, casts or sudden rise of blood pressure.

The first sign of malaise, headache, oedema, blurred vision, vomiting late in pregnancy, rising blood pressure, albumen or casts in the urine, demands an immediate careful examination to find the underlying cause. If none can be found we assume that the case is one of pre-eclampsia or nephritis and put her immediately upon treatment.

The diet is reduced to milk and bread, she is put to bed and given cream of tartar lemonade, one drachm of cream of tartar to the pint, and is directed to take digitalis in some form. If her condition does not improve very promptly, a blood chemistry is done and through the same needle 200 to 300 cc. of a twenty per cent glucose solution is run into her vein.

If her blood pressure is in the neighborhood of 180/100 we withdraw 200 or 300 cc. of blood before injecting the glucose, more for the purpose of removing the poison than reducing the blood pressure. The digitalis is continued until the physiological effect is reached, her diet is reduced to cream of tartar lemonade. If she is very oedematous, she is sweated with a hot pack or electric blanket. If she does not improve, labor is induced.

The labor is guarded with a sufficient amount of morphine to make her comfortable. She is delivered under a gas-oxygen anesthesia. We try not to give morphine within two hours of her delivery because of the baby.

The plan as outlined above is also used for the cases of nephritis that have not gone to convulsions.

Eclampsia and Nephritis, With Convulsions

The plan for treatment of convulsions is the same whether we believe the case is primarily of liver or of kidney origin. If she has marked demonstrable retinal changes, and if she continues to show albumen and casts in her urine long after she has recovered, we consider that she is a nephritic. But at the time of the acute illness we do not care what the primary pathology is. One of the objects is to keep her alive long enough to make our differential diagnosis.

The plan that has served us best is the Dublin method, slightly modified, and may be summarized as follows:

1. Give morphine sulphate, at least one-half grain, by hypo.
2. The morphine is repeated in smaller doses, if she continues to have convulsions, until the respirations are ten. Sulphate of atropine, grains 1/150, is added to the morphine when there is much frothing at the mouth or rales.
3. She is put into a room by herself and watched continuously.
4. She is kept on her side to prevent the aspiration of mucus and, in the event of a convulsion, is pulled over the side of the bed so that her head is lower than her body and there is no chance of aspirating mucus.
5. Digitalis in some form is used until patient is digitalized.
6. A mouth gag is used to prevent the biting of the tongue.
7. Artificial respiration and oxygen are adminstered after the attack, if necessary.
8. A high colonic irrigation first with soap suds, then five per cent glucose and soda bicarbonate is used. This is repeated every eight hours.
9. If the patient has recently eaten, she is given a gastric lavage and two ounces of the magnesium sulphate concentrated is left in the stomach.
10. Withdraw 200 cc. or more of blood, depending upon the blood pressure, size of the patient, and through the same needle inject 200 to 300 cc. of twenty per cent glucose solu-

tion. This solution should be sterile and fresh made.

11. If patient is doing badly, if the convulsions are increasing, both in number and severity, if the lungs are becoming more oedematous, then we deliver in the way that will cause the least shock to the mother.

12. After she has recovered sufficiently to swallow, we give cream of tartar lemonade freely.

13. We do not give food until the patient has begged for it. Begin with sweet milk. These patients do very well on cream of tartar lemonade for three or four days at a time.

Severe Nausea and Vomiting of Pregnancy Associated With Diacetic Acid and Acetone in the Urine

General treatment of all cases.—Fractional feeding particularly of carbohydrates, alkalies by mouth and bowel; relief of constipation; rest after eating with ice bag to gastric region; replacement of retroverted uteri, in some cases the use of a pessary, and in all such cases the demonstration of the knee-chest position.

I

No. Cases	Recovery without Abortion	Abortion	Accidental Abortion
9	4	3	2

II

Injections of Lutein in addition to the treatment outlined in No. I.

No. Cases	Recovery without Abortion	Abortion	Accidental Abortion
9	8	0	1

III

Nausea complicating Pyelitis of Pregnancy treated as No. II.

No. Cases	Recovery without Abortion	Abortion	Accidental Abortion
3	0	3	0

IV

Nausea complicating diseased tonsils treated as No. II.

No. Cases	Recovery without Abortion	Abortion	Accidental Abortion
1	1	0	0

V

Intravenous injection of 20% glucose solution in addition to treatment as outlined above in No. I.

No. Cases	Recovery without Abortion	Abortion	Accidental Abortion
11	10	0	1

VI

Nausea complicating Pyelitis of Pregnancy treated as No. V.

No. Cases	Recovery without Abortion	Abortion	Accidental Abortion
3	1	2	0

VII

Nausea complicating Nephritis treated as No. V.

No. Cases	Recovery without Abortion	Abortion	Accidental Abortion
2	1	1	0

Cases Treated With Large Doses of Glucose, Morphine, Digitalis

	No.	Moribund	Died	Babies Died
Pre-eclampsia	9	0	0	0
Nephritis	8	1	1 (12.5%)	3 (37.5%)
Eclampsia	22	4	6 (27.2%)	8 (36.3%)
Post-Delivery Eclampsia	3	0	1 (33.3%)	1 (33.3%)
Total	42	5(12.8%)	8 (19%)	12 (26.6%)

There were three pairs of twins.
Death rate of those having convulsions 24.2%

Operations

	No.	Voorhees Bag	Bag and Version	Forceps	Caesarean Section
Pre-eclampsia	9	0	2	1	1
Nephritis	8	3	2	1	0
Eclampsia	22	2	5	4	2
Post-Delivery Eclampsia	3	0	0	0	0

Caesarean Sections.—The pre-eclamptic was a primipara with central placenta previa. One eclamptic was moribund, operated under local to save baby; one eclamptic was a primipara

with twins, not in labor and doing badly. All were saved.

BIBLIOGRAPHY.

Treatment of Eclampsia, Then and Now. John F. Moran, M. D., Washington, D. C., A. J. O. G., Vol. 3, No. 2.

The Relationship Between Toxemia of Pregnancy and Uterine Sepsis from a Study of 400 Toxemic Cases. Foster S. Kellogg, M. D., A. J. O. G., Vol. 3, No. 4.

A Consideration of the Pregnancy Toxemia, Known as Eclampsia. Ross McPherson, M. D., A. J. O. G., Vol. 4, No. 1.

The Extent of the Renal Lesion in the Toxemias of Pregnancy and Pueperium. A. B. Spalding, M. D., M. C. Shevky, M. D., T. Addis, M. D., A. J. O. G., Vol. 4, No. 4.

Observation on the Blood Sugars During Pregnancy and the Pueperium. Walter N. Rowley, M. D., A. J. O. G., Vol. 5, No. 1.

A Critical Review of the Medical and Surgical Treatment of Puerperal Eclampsia. E. Gustav Zinke, M. D. A., J. O. D. C., Vol. 47, No. 6.

Intravenous Injections of Glucose in Toxemias of Pregnancy. Paul Titus, M. D., H. M. Givens, M. D., J. A. M. A., Vol. 78, No. 2.

The Role of the Carbohydrates in the Treatment of Early Pregnancy. Paul Titus, M. D., Geo. L. Hoffman, M. D., and M. H. Givens, M. D., J. A. M. A., Vol. 74, No. 12.

Intravenous Glucose Injections in Shock. Joseph Erlanger, M. D., R. T. Wood, M. D., J. A. M. A., Vol. 69, No. 17.

Glucose Intravenously as a Therapeutic Measure. Lawrence Litchfield, M. D., J. A. M. A., Vol. 71, No. 7.

The Carbohydrates in the Nausea of Pregnancy. J. V. Harding, D. Sc., B. P. Watson, M. D., The Lancet, 1922, 649.

Statistics from 2,341 Clinical Cases of Obstetrics. Greer Baughman, M. D.

26 *North Laurel Street.*

ALBUMINURIA IN RELATION TO DISEASE OF THE TONSILS.

By CLARENCE PORTER JONES, M. D., F. A. C. S., Newport News, Va.

It is quite commonly conceded by physicians that albuminuria may occur in almost any acute disease, especially in the exanthematous fevers of childhood. Even frank nephritis is not an unusual complication of acute infections; in fact, it occurs quite frequently after scarlatina, diphtheria and other diseases. However, physicians have not, as a rule, given general recognition to the possibility of renal changes in nasopharyngeal infection, especially tonsillitis. In 1910, H. W. Loeb[1] directed special attention to the fact that acute nephritis is a frequent sequel of tonsillitis, although this is often overlooked by the majority of practitioners. He made a very careful study of the available literature at that time, recording Leyden's observation (1891) of the possibility of nephritis after angina, and Thouvenet's reported case (1894), of marked albuminuria, ten days after the onset of acute lacunar tonsillitis. John Lovett Morse, Emil Mayer, Herrick, Friedrich, Mueller, Curschmann and numerous other authors had recognized the occurrence of nephritis after simple acute tonsillitis. Adler[2] had even recorded the statement that a form of nephritis occurs in at least seventy-five per cent of all cases of pure tonsillitis.

With the inauguration of the intensive studies of focal infection in relation to systemic disorders, the tonsils soon became the object of almost universal suspicion as probably the most common avenue of infection. Frank Billings[3] recognized clearly the etiologic relation of nasopharyngeal infections to arthritis and nephritis. This subject has been emphasized also by Shambaugh,[4] who stressed particularly the possibility that tonsil stumps, however small, may be productive of nephritis and rheumatism.

To illustrate the frequent correlation between tonsillar infection and nephritis, Loeb cited four cases, all involving physicians and members of their families. In each instance, diphtheria and scarlet fever were definitely excluded as the cause of the hemorrhagic nephritis, which was not discovered until the disappearance of mild tonsillar inflammation with an unusually slow course. This late renal affection differed markedly from the nephritis of scarlatina and diphtheria, in which the physical signs and the symptoms of nephritis are most apparent at the height of the acute infectious disease. If the tonsillar inflammation had not been observed, Loeb's cases would have been diagnosed as spontaneous or idiopathic nephritis. Smith and Bailey[5] have recently reported three cases that demonstrate the close relationship between tonsillar and renal infections. In the presence of chronic disease of the tonsils with acute nephritis or pyelonephritis, they recommend immediate tonsillect-

1. Loeb, H. W.: Acute Nephritis Following Acute Tonsillitis. Trans. Amer. Laryngol., Rhinol. and Otol. Soc., 1910, 146-159. Also: J. A. M. A., 55:1705-1708, Nov. 12, 1910.

2. Alder, I.: Remarks on Some General Infections Through the Tonsil. New York M. J., 83:641, March 31, 1906. Quoted from Loeb.

3. Billings, Frank: Chronic Focal Infections and their Etiologic Relation to Arthritis and Nephritis. Arch. Int. Med., 1912.

4. Shambaugh, G. E.: Trans. Am. Rhinol. Assn., 1913.

5. Smith, D. L., and Bailey, W.: Arch. Pediat., 40:525, Aug., 1923.

omy for the purpose of preventing permanent organic injury. Cautley[6] has cited two cases. One of his patients was observed for almost three years, after decapsulation of one kidney had been performed because of persistent albuminuria, anasarca and ascites. Subsequent transitory improvement was ascribed to the operation, but recurrence took place, with edema of the legs and massive albuminuria. This "flare-up" was ascribed to septic tonsils. Within a month after enucleation of the tonsils the albuminuria disappeared and the patient subsequently enjoyed good health.

Having ample facilities and assistance in our clinic at the National Soldiers' Home, we have fortunately had the benefit of careful laboratory studies, including urinalysis, in every case of tonsillitis, in adults as well as in children. Immediately after an attack of acute tonsillitis, albumin was found in over forty per cent of our cases, albumin and pus cells in more than twenty-five per cent, and albumin, pus cells and casts in over five per cent. In the last class of cases there was always a history of more than one previous attack. If tests for albuminuria or for evidences of hematuria were made systematically by laryngologists in every case of tonsillar infection, it is more than probable that Adler's statement that renal damage occurs in seventy-five per cent of all cases will not prove an exaggeration.

The Silent Tonsil.

The mere presence of the tonsils may often be considered a determining cause of renal involvement in nasopharyngeal infection. Because of their general structure, their crypts and recesses, the tonsils offer an excellent refuge for pathogenic micro-organisms. Undoubtedly the tonsillar and other lymphoid tissue of the pharynx plays a defensive role against local and general infection, but it has been definitely proved also that it serves as a portal of entry for systemic invasion by virulent bacteria. The etiologic relationship of the tonsils to renal disease, including nephritis and pyelonephritis, need not necessarily be evidenced by tonsillar hypertrophy. If diseased, any tonsil or tonsillar remnant, no matter how small, may provoke systemic complications that lead to renal changes. In the final analysis, the kidneys are primarily excretory organs, serving as filters for inorganic salts as well as organic detritus, including bacterial products.

In a further study of the material at our clinic, I shall purposely omit consideration of all cases of acute tonsillitis. Instead, I shall limit the analysis to cases in which there have been no severe attacks of tonsillitis, the patients having a septic appearance and complaining of stiffness of the neck during deglutition and of a general run-down condition, or "loss of pep," as the soldiers term it. Inspection of the pharynx discloses that the anterior pillar is darker in color than the other pharyngeal structures and is firmly adherent to the tonsil. The surface of the tonsil is more or less smooth, the crypt mouths being very small and difficult to locate. The crypts contain considerable retained secretion under pressure. The tonsil is light in color, for its surface is bathed in a white filmy substance like very thick saliva. To such a tonsil I propose to assign the name of "the silent tonsil." In the presence of this tonsillar finding, experience has demonstrated that we can confidently anticipate discovering albuminuria.

Although ether anesthesia was used in most of our operations, procain (0.25 per cent), being employed only rarely, the albuminuria was not attributable to the ether narcosis. The theory that the albuminuria after tonsillectomy is due to the irritant effect of ether on the kidneys is not tenable in the face of the results of numerous urinalyses. K. R. Ruddell and Scott Edwards[7] have reported that albuminuria was found quite as frequently after tonsillectomy under local anesthesia. They attributed the postoperative urinary condition to the fact that some, perhaps much, infective material is expressed from the tonsils during the operation and enters the general circulation. On the other hand, preoperative albuminuria usually clears up after a few days' rest in bed, and in these cases the renal disturbance after tonsillectomy proves less severe.

From January to September, 1923, we observed nine cases of "the silent tonsil." Every case has therefore been under observation for at least five months. The patients included six men, aged 19 to 48 years, two women, aged 29 and 44 years, respectively, and one boy, 11 years old. Examination of the urine disclosed pus cells in four cases, erythrocytes and pus

6. Cautley, E.: The Kidneys and Tonsillar Infection. Arch. Pediat., 40:84-87, Feb., 1923.

7. Ruddell, K. R.; Postoperative Nephritis. J. Indiana M. Assn., 11:6, January, 1918.

cells in three cases, and casts in one case. In each case, the general preoperative procedure was almost identical.

The patient was kept in bed for from two to five days, on a light diet with plenty of water and other fluids. On the day of the operation, thirty minutes before administration of the ether (in two cases, local anesthesia with procain was employed), the patient received a hypodermic injection of morphin, 1/8 to 1/4 grain, with atropin 1/150 grain. The child received 1/16 grain morphin. The tonsils were enucleated without undue haste, extreme care being exercised to remove every vestige of the tonsils, including the subtonsillar tissue, and all adenoid vegetations. After the operation the patient was kept in bed for from three to ten days. During this time the urine was examined daily, and an able internist co-operated in attending to the cases. The albuminuria disappeared completely in from five to fifty-one days—the longest period being in the case with casts—and repeated examinations in every case have failed to disclose recurrence of the urinary symptoms. So far as general physical improvement and cure of albuminuria are concerned, the results have been perfect in all patients except one woman with goiter, in whom increasing thyroid enlargement has necessitated another operation.

Conclusions.

1. Routine tests will disclose the presence of albuminuria or other evidences of nephritis in the majority of cases of acute tonsillitis or other tonsillar infections.

2. In cases of albuminuria of doubtful origin, careful examination of the pharynx may often determine the etiologic relationship of diseased tonsils.

3. Hypertrophy or severe inflammation of the tonsils is not necessarily an index of the etiologic relationship of the pharyngeal lymphoid tissue to renal involvement. Even small tonsils or a mild attack of tonsillitis may provoke marked nephritis.

4. Thorough enucleation of the tonsils, including the subtonsillar tissue and adenoid vegetations, assures the prompt cure and prevents the recurrence of the related albuminuria.

3117 *West Avenue.*

SOME REMARKS ON THE SECTIONAL METHOD OF STUDYING AND TEACHING MACROSCOPIC ANATOMY.

By John W. BRODNAX, Ph. G., M. D., Richmond, Va.
Department of Anatomy, Medical College of Virginia.

In considering the sectional method of studying and teaching macroscopic anatomy, it is a propos to touch upon its history and development.

The sectional method of studying macroscopic anatomy is by no means of recent date. There is abundant evidence that as early as the first part of the sixteenth century it was used, though to a very limited extent, with the customary dissection method. Leonardo da Vinci, living at that time, pictured median sagittal sections of bodies of both male and female. In the seventeenth century quite a number of anatomists gave illustrations of sections of various parts of the body; among them may be mentioned the great Belgian anatomist Vesalius, Vidius, Placentius, and de Graaf. To Vesalius belongs the credit of being the first to represent transverse sections of the brain. The following century was noted for its great progress in sectional anatomy. It was during this period that the works of Soemmering, Haller, and Vicq d'Azyr, on cross-sections of the brain appeared. Camper contributed an admirable picture of the pelvis in longitudinal section, drawn and engraved by his own hand, and Scarpa pictured the operation of perineal lithotomy by means of drawings from sections through the pelvis.

It is remarkable what success these early investigators achieved, hampered, as they were, by the lack of a method to harden the various structures of the body *in situ*, and, thus, to preserve their normal shapes and relationships. It was not until 1836, when Eduard Meyer introduced the freezing method, that this obstacle was overcome. This method was a decided advance over previous methods and gave a new impetus to cross-section anatomy. Many valuable works followed Meyer's discovery in rapid succession; the more notable of these were the contributions of Pirogoff, Henle, and Braune. Braune published his classic work on "Topographical Anatomy" in 1872. The superiority of Braune's work over those of his predecessors was due largely to his improvements in the technique of making sections, and to his appreciation of art in anatomy. Braune invented a freezing mixture; and he was the first to devise

a method of preserving frozen sections by allowing them to thaw out in strong alcohol. He also advocated true delineation of cut sections, and devised a method for making exact drawings of them. Dwight, in 1881, published a small volume on "Frozen Sections of a Child." This was the first effort in this country to stress the importance of serial sections in the study of macroscopic anatomy. Speaking in this connection, Dwight said: "Believing as I do, that frozen sections will play an important part in anatomical teaching of the future, I shall say nothing of their advantages, which speak for themselves." Dwight's work was followed a few years later (1887) by a publication of Symington on the "Topographical Anatomy of a Child," and, shortly after this (1893), Macewen published an "Atlas on Head Sections."

The introduction in 1895 by Gerota of formalin as a hardening agent marked the beginning of a new era in the study of sectional anatomy. By Gerota's method the bodies were first hardened by injections of formalin (five per cent aqueous solution), thence frozen and sectioned; hence, the structures retained their forms and respective relations not only during the cutting process, but also during all subsequent procedures. Another important advance was made by Terry in 1900. Terry injected a solution made of equal parts of fifty per cent formalin solution and ninety-five per cent alcohol. He obtained excellent results by this method without resorting to freezing. The best sections, according to Terry, are obtained from bodies fixed as stated and then thoroughly decalcified with ten per cent hydrochloric acid. Jackson modified Terry's method by omitting the alcohol. By his method freezing is also unnecessary. Improvements in technique have also been made by Potter, Berry, Eycleshymer, Schoemaker, and others.

With reference to the study of macroscopic anatomy by the sectional method, its importance, from a practical standpoint, cannot be too strongly emphasized. Henle has said that "the common purpose of all anatomical studies is the orientation of the organs in the living body." Sectional anatomy best prepares one to do this. No other method gives as correct an idea of the situation, form and relation of the organs as the study of these structures by means of cross-sections through various levels of the body. The accustomed systematic and regional dissection is, however, necessary to the more detailed study and intelligent understanding of sections. Ordinary dissection separates or takes apart the body, as it were, while in the sectional method it is rebuilt or reconstructed. The one is essentially an analysis; the other a synthesis. Ordinary dissection isolates the structures and more or less disarranges their relationships, while the sectional method reveals their true relations as they appear in the living body. Any knowledge of anatomy to be of practical value must be of such a kind as will enable one to visualize the various structures and organs on the patient before him. It is by combining the dissecting or analytic and the sectional or synthetic methods that such knowledge is best acquired.

As regards the equipment and methods employed in giving instruction in sectional anatomy, some differences exist in the various anatomical laboratories. The method as outlined in this paper is the one in most general use, and, on the whole, gives the most satisfactory results.

First of all it is essential for a course in sectional anatomy to have good anatomic material. Bodies selected for this purpose should be neither obese nor emaciated and they should be as free from any gross pathological lesions that are likely to disturb anatomical relations as it is possible to get in a dissecting hall. The body selected is first injected with a fifty per cent formalin solution, using either the femoral or common carotid artery, or both. It is then floated in a tank filled with a three to five per cent formalin solution. This is done to prevent distortion or flattening of the parts while the body is hardening. If a tank is not available, suspending or frequent rolling of the body will prevent flattening. After a few days the body is thoroughly hardened. It is then taken from the tank and marked off with water-proof ink to indicate the planes through which the sections are to be made. The next step is to photograph the body so as to have a reliable guide for the subsequent study of the sections. The body is now ready for the cold storage vault. The freezing of the body, it should be said, is not essential as the formalin hardening alone permits of good sections being made. Indeed, some laboratories, although equipped with cold storage vaults, omit the freezing of the body from preference. The body is now ready for sectioning. The section-

ing is usually done in one of the three principal planes, i. e., sagittal, coronal, or transverse; all planes are employed. In making sections one should begin at the head and cut in order at intervals of one and a half to two inches for ordinary purposes. If cut too thin the sections soon fall to pieces from usage. Of course, for special study of a region, as of the brain, or for reconstructive purposes, the sections may be cut very fine, even less than half an inch; but, in these cases, freezing is obligatory in addition to the formalin hardening. After cutting the sections are washed with hot running water to remove the sawdust, grease, etc., and are kept in alcohol or in a weak solution of formalin until needed for use. The necessary appliance for sectioning is an electrically driven hand-saw, forty inches in diameter, with twenty-four teeth to the inch.

With reference to the study of sections: this may be done in various ways. Obviously, a most advantageous way is to have such study supplement the regular course of dissection. In this way the one serves as an aid in the interpretation of the other. Sections cut in various planes may be distributed throughout the dissecting room so that they may be used for comparison by the student. In addition to this method of use of sections, the student may make drawings of the representative ones. For this purpose the section is placed in a shallow porcelain tray; a thin plate of glass large enough to cover the section is placed upon it, and the underlying structures traced on the glass with water-proof ink or wax pencil. Having secured an accurate tracing of the section on the glass, the student retraces it on drawing paper. This is done by placing the paper over the outlines on the glass and holding them before a window or over an electric light. The tracing on the drawing paper serves as a skeleton or an outline for the subsequent detailed drawing, which should be made from the actual section, by the free-hand method. The muscles are colored dark red, arteries vermilion, veins blue, nerves yellow, and the connective tissue is left white. All structures in the finished drawing are carefully identified and labelled. The drawings which I have here, are not my own, but were presented to me by Dr. J. Parsons Shaeffer, of Jefferson Medical College, Philadelphia. These drawings were made by students in the regular course of sectional anatomy given at that institution.

In conclusion, let me say, the sectional method of studying macroscopic anatomy has been given such emphasis in late years that the Council on Medical Education of the American Medical Association has recommended that it be a part of the anatomical work in all medical colleges. Sectional anatomy is already playing an important role in many of the leading medical colleges of the country, and is destined to take an even more conspicuous part in anatomical teaching of the future than it does at the present time. Nor will its usefulness be confined to the teaching of anatomy alone; serial sections will, in the future, have a place in instruction in physical diagnosis, especially sagittal sections through the thorax. Also, in courses in gross morbid anatomy serial sections may at times be used with advantage for, besides showing the gross anatomy of such conditions, they afford an opportunity at visualization of the condition in its exact anatomic relationships.

The importance of the sectional method of instruction in macroscopic is now recognized throughout the country, and no modern medical college can afford to omit it from its curriculum.

PUBLIC HEALTH, PRACTITIONERS AND UNIVERSITIES.*

By HARRY T. MARSHALL, A. B., M. D., University, Va.
Professor of Pathology at the University of Virginia; Member of the State Board of Health.

Mr. President, members of the Seaboard Medical Association, Ladies and Gentlemen:

Permit me to express my appreciation of the honor you have conferred on me by placing me upon the roll of your speakers for tonight; an appreciation blended with regret that Dr. Alderman found it impossible to give tonight a companion piece to his memorable address on Medical Education, delivered by him before this body twelve years ago.†

The State of Virginia has been singularly fortunate in the personnel of its State health authorities. You can completely convince yourselves of "The Value of a Health Officer to a Community," if you learn how much your

*Address delivered before the Seaboard Medical Association of Virginia and North Carolina, at Newport News, Virginia, December 4, 1923.

†See Edwin A. Alderman, "Medical Education," Alumni Bul. of the Univ. of Va.; 3d series; Vol. XI, No. 1: pp. 3-14; Jan., 1918.

State authorities have done in fifteen years to beat back disease, to reduce the number of deaths, to improve life and enrich the State. Not long ago I met a group of eminent European health officers, who were paying us a visit of inspection. Two or three of them said to me in effect: "Your health officers here are quite unique; quite unlike anything we have at home. With us public health is a recognized profession. We do what we see we can do with the money available. We consider that many good things must wait until the authorities or the public is willing to give us more money. But here! No! Your State health officers are not just professional men. They do not wait for appropriations: they spend themselves. They are sanitarians, engineers, health officers, yes! But they are missionaries as well! It will be many years before your people will understand what a great debt you owe to your health officers." With this tribute from discriminating professional sanitarians ringing in my ears, I wish that I could stop to review the work of our State Commissioner of Health and his able assistants.

The title of my address is given as "The Value of the Trained Health Officer to the Community." I shall, however, assume that this value is recognized, and shall seek rather to consider certain changes necessitated in the attitude of the medical practitioner due to the new possibilities of health betterment, and the corresponding changes indicated in the field of medical education, and of university life.

At the start I wish to remark on some of the greater changes affecting medical practice that have come about within our memory. I will pass by the sweeping economic changes of the last thirty years, the recessional from the ample city brown stone front to the snappy switch-on apartment: the progressing social and economic enfranchisement of the laborer and artisan; the changes—amounting indeed to mutations, that have taken place in habits, clothing, foods, amusements, transportation. And yet, changes of this nature have distinctly altered the characteristics of medical practice. Scarcely less of a transformation has appeared in the popular attitude towards hospitals. How many of our grandfathers would have selected a hospital as a place of choice in the hour of illness? Today the hospital habit is one of the few habits left us which seems to have excited no hostile propaganda. This sketchy outline may possibly suggest to your thoughts still other important social changes in the world around us which have occurred within the span of an average life, and which contribute to the altered relations existing today, as compared with a generation ago, between the doctor and the public. The changes are, in fact, great. It is only by a stretch of the imagination that Sir Omicron Pie can be recognized as a professional brother of Sir William Osler. It is recorded that in an earlier generation, a great English physician was chiefly noted for the impressive air with which he produced a watch as he felt a pulse, and said "Ah" as he examined a throat. What consultant today dares rely on any pronouncement which does not include such expressions as "X-ray," "basal metabolism," "histologic diagnosis," "focal infection," "pulse pressure," "endocrine functions," "sensitization," "vitamine requirements" and "sex complex"? Even Sir Thomas Browne, the intellectual equal of our best moderns, seems as one stumbling in the dark when compared with the surefooted modern scientific leader.

If we turn from the social to consider briefly the intellectual aspects of medicine today, we find that the profession of medicine has changed even more within itself than the doctor and his public have changed in regard to each other. This is no occasion on which to discuss the over-crowded medical curriculum, nor is it suitable to review the achievements and applications of modern science in relation to medical progress. May I, however, hazard an opinion as to a general trend? If we glance over the history of a typical widespread infectious disease, let us say, typhoid fever, we find that the advances, from the clear-cut recognition of the disease by Louis, included an advancing understanding of the typhoidal changes in function and structure, and attempts to translate this knowledge into terms of therapy; a few years later the recognition of the cause was followed by an intensive study of the typhoid bacteria; then, suddenly, men's minds leaped to the clear vision of modes of prevention, with the assured future of eventual dominion over this ancient past.

With certain differences, the studies in malaria from the early days of Laveran, Patrick, Manson and Ross, to the time of Gorgas and Carter have carried us from a

determined search to discover the nature of an entrenched and deadly foe to the vision of a day of complete emancipation from that foe's shackles.*

The progressive city of Newport News also furnishes an example illustrating the theme assigned to me. In the turmoil of the great war it was found necessary to give the most vigilant attention to public health improvement in all the cities in this neighborhood on account of the continual visits from the recruits in the great war cantonments near at hand. From the necessities of that time emerged your present excellent health department. Your health authorities, co-operating with those of State and nation did especially important pioneer work in combating the venereal diseases, that group of diseases which loomed up as the most important menace to the health and efficiency of our fighting forces. Though no less destructive in times of peace, these diseases were practically let alone by public health workers until the war pioneers found ways to attack them with success. Since that start the State health authorities, co-operating with health officers here and in other important centers, have continued a notable fight against these diseases, and there are indications that their prevalence is somewhat lessened. This is, really, an encouraging degree of success, considering the inherent difficulties of the subject and the smallness of the State appropriations hitherto available in this field of activity. Knowing, as you do, the ramifications of misery spreading from these diseases, and the importance of maintaining ground already won in a fight against this evil, your association may find that it has a special opportunity just now for public service, through endorsing this work and officially and personally expressing the hope that there will be no diminution in the financial support from the State applicable to the fight on venereal disease.

But it is not only in the case of infectious diseases that a general line of advance in prevention can be recognized. Among nutritional diseases, scurvy, rickets and beri-beri serve as examples illustrating the march of the human army from camp endurance to fort prevention. Thirty years ago, New York City each year witnessed the death of one out of every three babies under five years of age. As Osler put it "to be an infant was the most hazardous occupation known to man." The death rate for the same group in New York City is now less than one-half of its earlier figures, a result achieved by improving the food and general surroundings of infants and of their mothers. In Norfolk the infant death rate in 1900 was 236.4; last year it was 86, a saving of 150 infants in every thousand. Among diseases of internal secretion, there has been less abundant success so far, but the promise of the prevention of thyroid disease by iodine medication seems so valuable that it raises hopes of further successes in the future. It may be claimed in view of such facts, that the general forward movement of medical progress is in the direction of disease prevention.

Surprise is notably a transient emotion. The marvel of today is the habit of tomorrow. The great public and even the trained medical men and historians accept as matters of course the achievements of modern medical science, and yet, long ago, at least as far back as Bacon, philosophers recognized that the human mind might some day control the forces of nature, but no corresponding material advance resulted from the thought. For centuries Christians have made bold claims for the powers of faithful prayer, and have raised uncounted litanies for those in danger, affliction and distress, but only within a half-century have the dreams of philosophers and the prayers of the faithful begun to assume tangible shape and stand forth as the gigantic figures of modern science and social organization. It is truly a modern paradox that a pious group anathematizes the modern sciences instead of embracing them as children of the church's prayers.

Even though a half-century of modern science and social integration has produced astounding improvements, we must regard the present results not as the final product, but rather as the blossoms from trees whose ripe fruits will be even more substantial. We may, in fact must, count on the continuing progress of medical science and united social effort and upon further advances through the trenches of disease. Our children too will live in an age of change, with even slenderer anchorage to the past.

Consider, now, an entirely new situation confronting the practitioner. No sooner were dis-

*In Norfolk there were thirty-seven deaths from malaria reported in 1900: the population has multiplied several times over since then and yet in 1922 Norfolk had only six deaths from this source. In the same period deaths from malaria in six Virginia tidewater cities fell from eighty-six to ten. For statistics my thanks are due to Dr. Plecker, State Board of Health Statistician.

coveries made of methods to prevent disease than those diseases, and those methods ceased to be the special concern of medical men and at once became matters of general human interest. Think, for a moment, of the army now battling for the protection of the public and of future generations through control of disease; nurses, philanthropists, churches, publicists, educators, employers, laborers, insurance companies, politicians, governments, and, everywhere, parents. Has there ever been such an array moving toward a common purpose except during short periods of the gravest common peril? Yet there is nothing ephemeral about this union. There is no faltering because of victories won. Each success brings added power for the next advance. The forces are well organized and alert. Facts useful for disease control are eagerly seized by them and given to the public. Either with or without the aid of medical practitioners, the scientists and organized public are going to move forward overwhelmingly, it may be crushingly, but buoyantly, to conserve the health of future generations.

How shall the medical practitioner comport himself in an age when the "secrets of the profession" are common knowledge? There are, undoubtedly, difficulties which must be frankly faced. From different parts of the world we hear of friction between the health officer and the practitioner. The doctor may set himself in stiff opposition to "socialism in medicine." He may resent the infringements of his freedom due to the activities of the Health Officer. He may growl because his young patients are examined by the school physician, or in the baby clinic. He may be shocked and demur when advised that he should call up his families every half year or so and arrange to give each one a health examination. At the same time he will be very savage if someone else steps in and gives periodic health examinations to his patients and will cry out about unethical conduct, contract practice or State Medicine. He may feel that his means of earning a living is itself being snatched from him through the various health clinics and even more through the reduction in the diseases which bring him the bulk of his income. It is a high tribute both to our practitioners in Virginia and to our health officers that such causes of friction have remained so inconspicuous here, and that the establishment of the new Public Health is being effected with mutual understanding and consideration, and with the co-operation, yes, with the active assistance of our medical brethren. Our Virginia practitioners and our southern neighbors are showing that the new situation can be faced by keeping an eye single to the public good, by giving hearty and unselfish support to measures of public betterment and by exercising patience and balance in the settlement of the conflicts which must result from the clash of the older order with the new.

The great wave of preventive medicine now sweeping us forward, received much of its initial energy from the universities. The eddies and rebounds from the main wave are in turn stimulating the universities by presenting new methods, new fields of training and new goals for human endeavor. If I have at all succeeded in presenting in clear relief some outstanding ridges and eminences of the modern medical landscape, I may now give a bird's-eye view of some of the corresponding fields of university endeavor as they open to our view.

1. The inspection of students described in many university prospectuses should be supplanted by a thorough professional physical examination, more detailed than the public school physical tests. Provision should be made for authoritative follow-up work and for correction of defects. A daily and seasonal routine should be advised, with emphasis on moderation, regularity and continuity. Expert advice and supervision should be offered to students with physical handicaps. Along with this, ways should be found to impress on every student the great truths and laws of personal hygiene and public health. Every student should know that one of his duties as a citizen will be to foster the public health work by word and deed. He should know that "Public Health needs Public Help."

2. In the training of teachers for the public schools, suitable emphasis must be placed on health habits and their cultivation. We have recently launched courses with this end in view.

3. The universities are the natural places for the training of professional public health specialists. In many universities there are elaborate provisions for students in this field. At the University of Virginia, we have entered on this work by establishing short courses, designed to meet specific needs of the

State as recognized by the State health authorities, and we hope to keep pace with the growth of the movement in our community.

4. A student in public health or in the medical school should inhale an atmosphere pungent with the fumes of research. I wish that the atmosphere of our southern State universities was more heavily charged.

5. It is through their medical schools that universities can best lend their influence to the public health movement. Here is where most of the public health leaders will receive their early training for at least many years to come. Here the future practitioner will be moulded. Whether he wills it or not, the practitioner will be subjected to the sweep of the public health tide. Shall he go with the current, or resist it? Much will depend on opinions formed during his student days. The student should have an opportunity to observe the workings of an active public health department.*

This is of an importance not inferior to much of the laboratory training now crowded into the curriculum. He should become acquainted, by personal experience, with the workings of public health clinics for "baby welfare," "tonsils," "tuberculosis," etc. The general objective beyond these activities should be made perfectly clear. However, we will have to go even further, according to my impression. The preventive aspects of each disease will sooner or later be taught along with etiology and treatment, and not merely as didactic matter, but with a view to practical application by the future graduate. This innovation has already been introduced in England.†

The medical student trained at once in the facts of science and in the habits and traditions of his profession will find, I trust, that the ideals of public health are part of his medical heritage. Some may complain that it is proposed to make all doctors into public health officers, but this is an exaggeration. Medical practitioners will fill honorable and necessary positions in our world as long as illness, accident, carelessness, infancy, old age and death retain their places in our language. The physician has long been the trusted family confidant; his profession now brings to him public responsibilities. He will remain, as he is today, a most important part of the public health structure. We must recognize that the new world demands that medical graduates be not only "practitioner minded" but "public health minded" as well. This does not mean that the practitioner shall be cluttered up with the sanitarian's routine and with endless reports and forms. Already the sweep of medical practice and public health has reached a higher level even than the prevention of disease. Prevention is a negative activity. Beyond that we already see that our practitioners can take the lead in an age of "constructive hygiene." With assurance of success in disease prevention have come positive efforts to obtain a fuller expression of health possibilities. This is the active constructive field, beyond the cure of the sick, beyond prevention. Engineers and leaders are needed to guide the public over this freshest path. Does it not lead in the direction of a goal even more desirable than physical perfection itself? The practitioner is the natural leader and guide for this work. Will the practitioner venture on the task? Can our profession work out ethical methods for this development? These, my medical brethren, are great questions which confront our fraternity.

*At the University of Virginia the local Health Officer is on the teaching staff and gives a course to the medical students. Two students serve as sanitary inspectors.

†See Sir George Newman: "Permeation of the Medical Curriculum by Preventive Teaching." Brit. Med. Journ.; Sept. 1, 1923, p. 347.

SOME NEW POINTS IN THE NUTRITIONAL CARE OF PREMATURE INFANTS.*

By SAMUEL NEWMAN, M. D., Danville, Va.

Premature birth occasions one of the most impressive losses of human life. According to the State Bureau of Vital Statistics, there were 1,496 deaths in Virginia in 1922, attributed to premature birth. We all know how difficult it is to manage a case of premature birth and how important it is to concentrate on the special factors which condition its successful outcome. According to Budin[1] these are:

1. Temperature regulation.
2. Protection from infection.
3. Proper nutrition.

In this paper we shall limit ourselves to a consideration of the factor of nutrition in the care of the premature infant, and we shall endeavor to answer the two following questions:

*Read before the South Piedmont Medical Society, South Boston, Virginia, November 20, 1923.

1. What is the energy requirement of the premature.

2. How should this requirement be administered.

While there is agreement among pediatricians with regard to temperature regulation and the meeting of other special indications in the care of the premature, there is a great divergence of opinion with regard to its food requirement. Budin[2] requires about 140 calories per kilo of body weight. Lust[3] places the requirement at 120 to 130 calories per kilo. Birk[4] requires an energy quotient (number of calories per kilo of body weight) of 100 to 110. American text books consulted on this subject give but scanty information and no definite directions how the caloric requirement of the premature infant should be prepared *volumetrically*, that is, the number of calories per unit of volume.

We shall attempt to answer these two questions from the practical clinical viewpoint, from a study of the records, and from first hand observations at the Children's Clinic of the University of Vienna. Before we proceed further, it might be of advantage to review a few fundamental facts in the science of infant nutrition.

The amount of food that an infant may take per day (by *amount* is meant *caloric* value), does not necessarily all go into the support of life. Some infants may get more food than is necessary for growth and exercise. An excess of food—within limits of health—will lead to "luxury consumption," and outside the limits of health, may lead to a train of disturbances. In the amount of food which we give an infant it is necessary to recognize three components. These are:

1. Minimum.
2. Optimum.
3. Maximum.

By *minimum* is meant the amount of food necessary to support the inner body functions. This represents the *basal metabolism*.

By *optimum* is meant the amount of food above the minimum which is necessary to support the various body functions, such as growth, exercise, and fat accumulation.

By *maximum* is meant the amount of food which the infant will be able to metabolize without breaking down its digestive functions.

The question now arises how is the minimum, optimum, and maximum determined clinically?

As it is well known, Rubner[5] established the fundamental fact in nutrition that there is a relationship between body surface and body metabolism (while at rest). The body surface is conceived of as a radiating, or heat producing, surface. Consequently, the food requirement of the body will stand in a definite relationship to its surface area.

Of course, no one will think of estimating the energy requirement of infants, for clinical purposes, by means of the calorimetric apparatus of Atwater and Benedict; or even by the simpler methods of determining the oxygen consumed and the carbon dioxide eliminated by the original Kreogh apparatus or any of its modifications. Yet, for practical purposes, we do possess a method of determining nutritional requirements in relation to body surface.

Pirquet originated the use of the square of the sitting height—the distance from the top of the head to the sitting level—as a basis for the calculation of nutritional requirements in relation to minimum, optimum, and maximum. It is not intended to enter here into a consideration of the theoretical propositions upon which Pirquet bases his nutritional surface. This I have done elsewhere.[6] It will be sufficient to mention that Faber[7] has shown that the food requirement per meter of surface area obtained by means of Pirquet's formula closely approximates the values obtained by Rubner in using the Meeh formula for calculating surface area.

Pirquet and his co-workers have found that the maximum of food which an individual will be able to metabolize within twenty-four hours, within the limits of health, is equivalent to the caloric value of so many cubic centimeters of milk as the square of the sitting height expressed in centimeters. The minimum food requirement, or the basal metabolism, is equal to three-tenths of the maximum. Between the maximum and the minimum we have the optimum, which is a variable, depending on the degree of exercise.

We are now in a position to answer in part our first question as to what is the nutritional requirement of the premature infant. Its minimum requirement will be three-tenths of its sitting square in terms of milk units. We

shall now have to determine the optimum requirement of the premature—the amount of food above and beyond the minimum necessary for growth, fat accumulation, and body movements.

In connection with growth of the human infant it will be well for us to understand the term *living potential.* By this Escherich[8] means the ability of every organism, by means of assimilation, "to sustain itself; to grow; and to reproduce its own kind." As an expression of living potential may be taken the gain per kilo of body weight in a unit of time. Experience has taught us that premature infants with no nutritional disturbances have a greater living potential, or coefficient of gain, than full term infants. At first glance it seems like a paradox that premature infants—supposed to carry with them a *debilitas vitae*—should gain weight faster than normal infants. The explanation for this, as stated by v. Reus,[9] is as follows:

The physiological coefficient of growth shows from the moment of conception a continuous decline. The premature infant is, with regard to its age from the moment of conception, younger than the full term baby. The premature, therefore, is endowed with a higher growth potential than the full term infant. In other words, the full term infant at the moment of birth is nine months from the moment of conception; the premature, on the other hand, may only be seven months from the moment of conception, hence is able to grow faster.

We therefore see that a comparatively high energy quotient will have to be provided for the rapid growth of the premature infant. Talbot well expressed it, that one kilo of body weight of the premature is not equal to one kilo of body weight of the full term infant. In the Pirquet system of nutrition it has been found that five-tenths to six-tenths of the square of the sitting height in terms of cubic centimeters of milk will cover the optimum needs of the premature. A premature infant with a sitting height of 30 cms. will have an optimum need of 0.6 x 30 x 30 = 540 milk units. This means the infant will need food equal in caloric value to 540 c.c. of standard milk (one liter of standard milk contains 667 large calories).

We shall attempt to answer now the second question: How should the food requirement be administered? The feeding of the premature presents a technical difficulty. According to Schick[10] it is necessary to meet one or more of the following difficulties:

1. The weak sucking power of the infant.
2. A slight appetite for food.
3. An occasional absence of the deglutition reflex.
4. The small capacity of the stomach.

The ideal food for the premature infant is unquestionably human milk. Unfortunately it is not always easy to obtain in private practice and sooner or later we shall be forced to resort to artificial feeding. In connection with breast milk it must be stated that it is not always the ideal food for the premature infant from the volumetric standpoint. The stomach of the premature is not large enough to hold the ideal food requirement. In practice we try to overcome this difficulty by frequent feedings, but this subjects the infant to frequent efforts with which it can hardly cope, and this method is not successful in every case.

Schick,[11] in his studies on the question of concentrated nutrition, has established a great many indications for concentrated feeding in pediatrics. The easy and practical method of calculating the nutritional requirement of every individual from the sitting height in the Pirquet system of nutrition and the adoption in this system of milk as a standard with which all other foods are compared, both with regard to caloric value and concentration, has stimulated research in the field of practical dietotherapy. For the purposes of this paper it will be sufficient to make clear the following conceptions:

1. *Even nutrition* (Gleichnahrung). By this is meant a food which in a given volume has the same caloric value as milk of similar volume. Seventeen grams of sugar dissolved in 100 c.c. of water has the same caloric value as 100 c.c. of milk.

2. *Double nutrition* (Duhu; Dubo). By this is meant a food which has twice the caloric value as a similar volume of milk. Fifty c.c. of milk with 8.5 grams of sugar dissolved in it is equal in caloric value to 100 c.c. of milk.

There are a great many other food concentrations, logically designated, which indicate at a glance the relationship of caloric value to volume and the substances from which they are made.

I do not wish to raise the whole question of the applicability of food concentration in pediatrics. As mentioned above, this feature of dietotherapy has been scientifically and clinically worked out by Schick and his co-workers in the Vienna Children's Clinic.

What I wish to emphasize here is the fact that the feeding of premature infants with one and one-half or double concentrated foods, that is with milk mixtures plus 8.5 or 17 per cent sugar, is the routine of the Vienna pediatric school.

By way of illustration I shall cite the actual management of a few cases of premature birth at the Children's Clinic of the University of Vienna.*

Baby Hans v. Peskier.—Weight at birth, 1,460 grams (3.2 lbs.) After fifteen weeks in the Clinic, the infant doubled its weight. The average weekly *energy quotient* was 140 calories. At the end of the second month and during the first part of the third month, the baby suffered from otorrhea. Otherwise, the gain in weight would probably have been faster. The food concentration was *dubo* and *sesquabo*,—double concentration and one and one-half concentration.

Baby Engel Feldwabel.—Admitted on fifth day after birth with a weight of 1,230 grams (2.7 lbs.) After eight weeks in the Clinic the infant doubled its weight. The average energy quotient was 167 cal. per kilo. The infant received for the most part *duhu* (breast milk with 17 per cent sugar). This case illustrates the value of breast milk and the possibility of a gain in weight on a low protein content.

Summary.

1. The nutritional requirement of the premature can be calculated from its sitting height and expressed in so many c.c. of standard milk as the square of the sitting height in terms if centimeters.

2. The optimum food requirement for the premature is about five-tenths to six-tenths of the square of the sitting height.

3. Food concentration is well borne by the premature infant and it solves a great many technical difficulties in the assimilation of a sufficient quantity of food by the premature.

References.

1. Quoted by Litzenberg. Am. J. Dis. Child. 1910.
2. Manual pratique d'Allaitement. Paris, 1907.
3. Quoted by Hoffa. Arch. f. Kinderheilk. 1923.
4. Mon. f. Kinderheilk. 1911.
5. Zeitschr. f. Biol. 19, z. 314. 1883.
6. Newman. A New Rational System of Dietetics in the Light of European Experience with the Problem of Nutrition. Transactions Va. Med. Soc., Roanoke, Oct. 16-19. 1923.
7. Am. J. Dis. Child. May, 1923.
8. Quoted by v. Reus: Die Krankheiten des Neugeborenen. Berlin, 1914.
9. Die Krankheiten des Neugeborenen. Berlin, 1914.
10 and 11. Zeitschr. f. Kinderheilk. 13, 1915. Same, 14, 1916.

*I am indebted to Dozent Nobel for the privilege of using the material of the Pirquet Clinic.

INTUSSUSCEPTION: REPORT OF AN UNUSUAL CASE.

By W. LOWNDES PEPLE, M. D., Richmond, Va.
Surgeon to the McGuire Clinic.

If one will but review the literature of this condition and read carefully such exhaustive studies as have been made by Elliott and Corscaden, King, and others, the futility of adding anything that is new to this subject will readily be seen. So the real object of this paper is to put a rather unusual case on record, with a cursory review of the subject as a foreground, and a few practical suggestions as to the handling of such cases.

Intussusception is a telescoping of one segment of the bowel into the segment below it. Any part of the intestine may be the seat of it, but it is far commoner in the small than in the large intestine.

It may vary in extent from a few inches to the better part of the ileum and colon. It may take place very rapidly, the inverted ileum appearing at the anus in a few hours. It may occur at any age, but is far more prevalent among infants and children than in adults.

There are many causes ascribed to it, but a large majority are directly due to hyper-peristalsis, which is induced by irritating foods, infections, or purgatives. Traumatisms, such as a fall or even just jumping a child up and down, have been known to cause it. The presence of tumors of the bowel is a very frequent cause, and especially is this true of the pedunculated variety that hangs into the lumen. They are gripped by the peristaltic wave and carried along down, pulling the bowel wall in after them.

Elliott and Corscaden in their remarkable detailed report of 300 cases find that 100, or one-third of their series, were due to tumors, sixty being benign and forty malignant.

In the August, 1923, Clinics of North Amer-

ica, Drs. Edward and Louis Morehead call attention to the very common ileo-cecal variety, and draw an analogy between the prolapse of the ileum through the ileocecal "sphincter" and the prolapse of the rectum through the anal sphincter, so frequently seen in infants.

The symptoms of intussusception are those of partial or complete intestinal obstruction plus tenesmus; bloody, mucous stools; and the presence in the abdomen of a somewhat curved sausage-shaped tumor.

The diagnosis may be easy or it may be extremely difficult. Since the established presence of the tumor is almost pathognomonic, if there be symptoms of obstruction with tenesmus and bloody mucous stools it is extremely important to demonstrate its presence or absence.

A high rectal examination with the finger can be made even in very young infants, with far less difficulty than is usually supposed. Light chloroform anesthesia should be given as an aid if needed for relaxation. Many tumors will be demonstrated in this way that would be missed on ordinary abdominal palpation.

There are numerous classifications of intussusception, with groups and sub-groups; but from the standpoint of the clinician there are two—the subacute or chronic and the acute. In the first the process is slow, with exacerbations and remissions; the obstruction is not complete; part or all of the fecal matter goes through. There is time for thought and planning, and the application of well-known surgical principles renders difficult obstacles at least surmountable. But in the acute variety the whole situation is pregnant with hazard. There is intestinal obstruction, plus partial or complete strangulation of the bowel's blood supply. If the case is in an infant, the dice are all loaded against us.

If there are chronic and subacute cases, surely some acute cases must recover spontaneously or in response to treatment. It is highly probable that every tumor case has started to descend and righted itself once or many times before the final disaster takes place.

So there is a field for medical and mechanical treatment; and, in every case where intussusception is even suspected remotely, there is one thing we can always refrain from doing, and that is giving purgatives, which can only make bad matters worse.

There are two methods of relief that have had a fair measure of success in reducing intussusceptions of, or involving, the large bowel. They are the injection of air or of fluids into the colon. The use of air is not without danger, since it is hard to regulate either the amount used, or the pressure attained. Ordinary high enemata are far safer and about as efficacious.

I have used a method in several cases with the late Dr. McGuire Newton, in which we believe we were successful in at least two cases. I first saw it described in the *Journal of the A. M. A.*, a great many years ago; and unfortunately I can not recall the name of the author. He used the inverted position in rectal examinations and colonic treatments. If we slip an anoscope in, in this position, the rectum and colon balloon out with in-rushing air; the viscera drop down against the diaphragm; and one can pour water or fluids in with a saucepan, and literally "drop them high up" in the descending colon. We tried this in several cases where we believed that intussusception existed, and thought that we relieved them. We have varied this by giving enemas at low pressure, instead of using the anoscope or funnel and pitcher. I commend it as a harmless practical method which I believe to be of value.

Fig. 1—Method of giving high enema.

The surgical problem is an extremely grave one. If the case is gotten early enough, before the bowel wall is seriously damaged or the mesenteric vessels are thrombosed, it can be reduced by expressing the intussusceptum by gentle pressure on the lower segment and still gentler traction on the upper segment.

But many cases present inseparable adhesions or gangrenous bowel with thrombosed vessels. We cannot simply do an enterostomy as is indicated in many other types of obstruction when we wish to tide over a crisis. It is often imperative to do more or less extensive resections, and in an infant badly shocked to begin with, the outlook is far from promising.

Local anaesthesia as far as possible, the lightest general anaesthesia when imperative, gentleness of manipulation, rapidity as far as it is consistent with good work, careful maintenance of the body heat, are factors which may mean very, very much in the class of case as outlined.

I have had six cases and three were due to tumors which I wish to record. The first one might be classified as a subacute case, as it was of a week's standing and the man's condition was fair. He had an intussusception of the ileum, caused by a polypoid tumor the size of a walnut with a moderate-sized pedicle. The bowel was readily reduced, the tumor excised, and the bowel closed. He reacted well but several hours later his pulse and respiration ran rapidly up and he died in a few hours. I believe his death was due to pulmonary embolism, the embolus having been dislodged from one of the thrombosed mesenteric vessels.

The second was a chronic case which was under observation for some time, during which there were several exacerbations with subsequent remissions. On operation, the intussusception was found to be due to a small sessile growth in the wall of the ileum, which so constricted the lumen that a resection was done with end-to-end anastomosis. This patient made an uneventful recovery, but died in a few months from metastasis of the growth—which was a lymphosarcoma.

The third case, which I wish to report in detail, was as follows:

D. W., white, male, age 14 months. The child has been unusually strong and vigorous with nothing to suggest abdominal trouble up to the present attack. On December 2d, 1923, he seemed unwell and to be in pain. He was given calomel and castor oil, with good bowel movements. The symptoms of general discomfort continued. On December 4th he was seen by the family physician. There was a mild bronchitis and a general listlessness, with a temperature of 100 degrees. That morning the child had passed a good deal of old blood and complained of paroxysmal abdominal pain. It had vomited once or twice, but not very much. On the 5th it was seen by another physician, who thought pneumonia was developing. It was given a dose of castor oil. On the morning of the 7th the family physician saw it again and, as there was abdominal pain and no action had been gotten from the oil, an enema was given. This brought only a little blood. A mass was now detected in the lower left abdomen, so the child was brought to St. Luke's Hospital. It had one vomiting spell on the way and the vomitus was fecal in character. It reached the hospital at 5 P. M. on the 7th, having been sick about five days in all. It was very pale and listless. It appeared shocked, with rapid feeble pulse, and temperature about 100 degrees. The white count was 18,000, with forty-two per cent polys and fifty-six per cent lymphocytes. A sausage-shaped tumor could be plainly felt in the left lower quadrant of the abdomen, and was also felt on rectal examination.

The diagnosis of intussusception was confirmed. A grave prognosis was given, and an immediate operation advised.

Under local anaesthesia a lower left rectus incision was made and the mass delivered, which proved to be an intussusception of the ileum into the cecum, transverse, and descending colon. When this was reduced, the starting-point of the intussusception was found to be a small tumor, two and one-half or three inches in length, attached to the inside of the ileum some two feet above the ileo-cecal valve. Its point of attachment seemed to be an inverted diverticulum with a firm mass at its tip, the lumen being the size of a slate pencil.

The tumor was excised at its base and the opening sutured transversely. Sixty c.c. of saline was left in the peritoneal cavity, and the wound closed. The patient died a few hours later, of continued shock.

Pathological remarks by Dr. S. W. Budd:

A portion of an invaginated bowel removed

at operation for intussusception measured one and three-quarters by three-quarters of an inch. The distal portion of the removed bowel is balloon-shaped and solid—the proximal portion is hollow and the lumen admits a large forceps without difficulty.

Fig. 2—Illustration of Case 3.

The intestinal wall is thickened, engorged, edematous and in an early stage of gangrene. On close observation the relation of the mucosa and serosa to the lumen of the bowel is reversed so that the lumen is lined by the serosa.

In the tip of the inverted diverticulum of the intestine is a gland-like mass two cm. by one cm. in size. The glandular mass was located within the submucosa.

Microscopic Examinations—The bowel showed a gangrenous condition. The several coats of the bowel were heavily infiltrated with polymorphonuclear leucocytes, fibrin, blood and coagulated proteids. There were but few remnants of the original structure. The muscularis showed an active coagulative necrosis. There were a few glands which aided me in locating the mucous membrane. The gland structure in the tip of the inverted diverticulum was pancreatic tissue. All of the histologic structures of the pancreas were present—the lobules, the interlobular spaces, the interlobular ducts, and the islands of Langerhans.

When we consider the large portion of the foregut from which the pancreas arises, and when we consider the number of diverticula (two ventral and one dorsal), that enter into the formation of the pancreas, and when we think of the rapid growth of the foregut in the pancreatic zone it is not difficult to picture a small portion of pancreas being unable to keep the pace of an actively growing diverticulum and becoming detached and carried backward or forward by a rapidly growing bowel. This is the probable explanation of the origin and position of our aberrant pancreatic case.

Aberrant pancreas while rare tumors are the most common anomaly of the pancreas. They may occur in the duodenum, the jejunum, the stomach, the ileum, the colon; in rare instances they may be found in Meckel's diverticulum and in the abdominal wall in the region of the umbilicus. Hanau described a duodenal diverticulum tipped with an accessory pancreas, and Weichselbaum reported a similar diverticulum of the stomach.

In Case 52, of the series reported by Elliott and Corscaden, an almost identical case was reported, and this is the only one I have thus far been able to discover. I quote his exact words:

"Pathological Remarks: Accessory pancreas in blind end of diverticulum had formed pedunculated tumor in lower ileum."

Miscellaneous

The Proposed Richmond City Ordinance.

In view of the laxity in the administration of the laws of medical licensure and in view of the inadequacy of present laws to meet new conditions associated with post-war-conditions and with the "prohibition" status throughout the country, the proposed ordinance for the City of Richmond, herewith submitted, together with the splendid arguments ably presented by Dr. J. Allison Hodges, of Richmond, representing the Richmond Academy of Medicine, before the Ordinance Committee of the Richmond City Council, will doubtless be of more than passing interest to our readers in the profession. Cults and illegitimate practitioners abound in the land: Connecticut offers an example of the gravity of the situation. (Editor).

"1. That it shall be unlawful for any person to practice as a physician or surgeon, or to practice the art of healing bodily or mental infirmities, with or without physic or surgery, in the city of Richmond, except and without such person shall have obtained from the Commissioner of Revenue of said city a license in accordance with the provisions of Chapter 15, Richmond City Code, 1910, and the ordinances amendatory thereto or substitutionary thereof. This clause shall not apply to persons who only practice the religious tenets of their church and minister to the sick or suffering by mental or spiritual means.

"2. That it shall be the duty of said Commissioner of Revenue, before issuing a license to any person as being set forth, to require such person to present to him proper certificate issued by the State Board of Medical Examiners, showing that such applicant has duly qualified before said board to practice in accordance with the provisions of Chapter 68 of the Code of Virginia."

This ordinance is directed against no special persons nor cults, but is offered in order that the State Medical Practice Act may be strengthened and our city better protected from incompetent and inefficient practitioners of the healing art. This is, moreover, deemed essential, because the present city ordinance, in enumerating the different professions and trades in the city which should be taxed, does not specifically mention "chiropractors," as this method of healing was not notably prevalent in this city in 1910 when this act was passed; the city ordinance, however, does mention "healers," and, after the medical law was passed by the state in 1913, advancing the requirements necessary for any one to obtain license to practice the art of healing, and exempting by courtesy all who at that time were so engaged, and thus licensing them, among others sixteen chiropractors, a loophold for violation of the Medical Practice Act, through the omission to include "chiropractors," was made.

As a result of this combination of circumstances, any one desiring since 1910 to practice the healing art in this city, has been enabled, not only to defy the state medical law, but has had a plausible reason to do so, by being allowed to take out a license, even though it was in defiance of Chapter 68 of the Code of Virginia. Naturally, this action on the part of the city, has brought about confusion and increased difficulty in enforcing this state medical law for the protection of public health.

The above ordinance merely seeks to correct these inequalities, and make it impossible for the city to aid and abet would-be violators of the law, for under present conditions, any one can take out a license as a "healer." and immediately proceed to practice, as he chooses, the art of healing.

The state medical law sought to establish one general and reasonable, but definite standard of requirements, by which every applicant to practice the healing art in this state should be tested by its examining board, but the present city ordinance clearly allows any person to set his own standards, and thus enter the profession by a side door, and yet reap the same rewards that revert to any one having been compelled to obtain license in legal manner.

As matters now stand, it is a question, then, of the city either upholding the state law, as to medical practice, or of assisting intended violators of the same law to evade it by a questionable interpretation as to the particular method of practicing the art of healing under the name of "healer."

This is a matter of most vital importance to the people at large, for, if continued, any one who pretends to practice any special art of healing can come to the city, and under its protection, practice without even passing *any* board or commission, as to his capabilities to do what he professes, and this would be in opposition, likewise, to the custom in this city of having separate boards to pass upon the competency of different trades, as, for example, such as plumbers, electricians, etc., and it seems eminently logical that if the city has thus sought to protect its material welfare, it should, also, in matters of health and disease, be as careful, and even more stringent.

This then is not a contention among physicians to force the public not to approve, nor accept any special dogma, nor any one line of treatment, but to require of all applicants the same general basic preparation before practicing any one or more methods of healing. The Medical Practice Act of 1913 was originated by members of the medical profession, in deference to the wishes of the American Medical Association which has about 80,000

members, and was perfected by the Virginia State Board of Education, who became its sponsors, and who have since been the overseers of its administration, for its representatives pass upon the qualifications of every applicant to study medicine before they become students at any Medical College in the state.

This law is the result of the best thought of scientific men throughout this country, and is in working effect in the large majority of the progressive states, and is supported by all of the higher institutions of learning in this state, which have conformed their literary requirements to meet these standards, the people being thus better protected against the errors and dangers of incapacity and incompetency.

The medical profession neither here nor elsewhere is fighting the chiropractors or any other cult, except on the ground that they have not measured up to these standards, but instead, have presented and practiced methods which are narrow and limited in their scope, and which are as unscientific, as they are unreasonable. The fact that one cult may simply practice their creed by the use of their hands, or some other method, in the treatment of disease, without ever making a diagnosis, but simply governing itself by what the patient may say is the trouble, or another, that may teach that some other individual method, such as the assertion that ninety-five per cent of all diseases originate in the spine, doesn't relieve them of the responsibility, nor protect the people against the fact that disease itself is as varied in its causes, as it is different in its manifestations, and only proves the indisputable fact, that in this, as in other things, one idea nor one factor doesn't make, nor include the whole.

It has been alleged, that to enact this ordinance would be class legislation and the deprivation of the right of any one to make a living as he might choose, but in no sense can it be considered class legislation, unless it be that it would protect a class which at present consists of sixteen members licensed by courtesy and of another class of 134 members, who are endeavoring to practice the art of healing in opposition to, and in direct violation of Section 68 of the State Code of Virginia regarding the practice of the art of healing, for the recognition and endorsement now of lower standards for these few, would certainly be rank individual and class injustice to many, both in the past and present.

There is no opposition by members of the medical profession to any number of new licensees coming into the state, provided they all come through the same gateway, by proving their fitness according to regulations in force since 1913. At that time, the medical law which was passed in conformity with all other progressive states, gave notice to the world of its requirements, and all who have come here since its passage, have chosen to come, already knowing the facts, and they have come with the intention either of upholding or defying this law; consequently, this whole matter has been passed upon by the state in 1913, and now it is the evident duty of every one to sustain the existing law.

This ordinance, in short, is simply to make more forceful the state law, and to supply the omission in the previous city ordinance, and is a part only of the great educational system of the state, which demands in all lines of endeavor, a better preparation by acquiring more and varied knowledge. To lower these standards, would be to disrupt the whole state educational system. No one denies that some cases may be benefited by any kind of treatment that may be used, but the people demand that they be protected in every way possible regarding their health and lives, and it is for this reason that physicians, knowing the facts, stand always ready to promote the best interests of higher education, both in a literary and scientific way. As a consequence of the progress manifested in this direction, it is a well known fact that representatives from fourteen foreign countries have come to Richmond during this past year to study our local and health problems, and secure information and instruction along these professional lines, and our progressive state and city laws and their requirements must be given the credit for this in large measure.

As mentioned before, the present Medical Practice Act is violated by any one practicing a sectarian or special cult who has not secured a state license, and our indictment is against all who have not shown the requisite literary preparation and medical training, and this ordinance, hence, is necessarily, also, opposed to the practice of the chiropractors, because they are the most frequent violators, and have admittedly, as a body, the least scientific training, their courses of prescribed study averaging from six to eighteen months as a rule, and

resulting, so far as known, in no single advancement, or discovery, in medical science.

In many other states chiropractors are required to be licensed, just as are others who engage in the art of healing, and in the state of Ohio, Chief Justice Wm. Howard Taft, of the Supreme Court, upheld this opinion as to necessary preparation in all the basic sciences being the same for all, and in referring to their constitutional liberty, he further states: "Our jails and penitentiaries are filled with inmates who have been deprived of their liberty for the public good, and the power of the state to deprive its citizens of their lives for the public good has never been questioned," and also the United States Supreme Court has ruled in the case of Ira W. Collins vs. the State of Texas that "any person shall be regarded as practicing medicine who shall treat or offer to treat any disease or disorder, mental or physical, or any physical deformity or injury, by any system or method, or to effect cures thereof, and charge therefor, directly or indirectly, money or other compensation."

By this decision, then, any one using chiropractic methods or any other method or methods, for cure and reward, is legally a practitioner of medicine, and must abide by the laws in force in the state where he practices.

Several bills, owing to three factions among the chiropractors, were presented before the present General Assembly, and one demanded that a chiropractor should be upon the State Medical Board, but all of these bills offered, fixed a lower standard than is at the present required by the board, and no chiropractor in the state at present has had sufficient preliminary scientific education to qualify him for any such position.

The osteopaths in this city and state regularly took the prescribed examination before the state board for eleven years and proved that they had colleges, which were giving the proper basic education, before they asked for a representative on the State Medical Examining Board.

Furthermore, it would seem a paradox for our citizens to give money to our two medical colleges, and then allow representatives of any cult or sectarian school of practice, to come here and stay a few years, and then enter upon the art of healing without having as much education as we compel our own colleges to give, and our own students to receive.

All that is asked, is to let the present state board continue as it has for the past ten years, and to have every practitioner pass the state's standards and prove himself worthy according to these standards that every progressive state has adopted for the protection of the health of its citizens; in other words, one door open for all to pass through and qualify and then, let the legally licensed practitioner use any method he pleases.

Justice and fairness demand that the chiropractor, or any other single barrelled practitioner who shall take into their hands the lives of others, shall be placed under the same requirements for practice as doctors of medicine, and if proved competent, they will receive the same recognition that is now accorded all properly educated applicants for license to practice the healing art.

The outstanding difference between the so-called cults and regular medicine is, that those of the cults whose practice is limited to one cause or one locality for disease, simply treat the supposed disease that is present and supposedly originates in that special region, while regular medicine takes into account the whole human system, and not only treats present diseases, but what is much more important, prevents them.

It is not so much the concern of this city or state what plan of practice the physician pursues, as it is the necessity for knowing the amount of medical education he has accumulated and how much he knows of the whole human machine, especially of the cause, nature and prevention of disease.

Unless a physician who takes into his hands the lives and health of the people, is willing to prove before the State Examining Board how both to maintain present health and prevent future disease, by showing knowledge, not only of one part of the human system, but of the whole, he is a danger and menace to personal and public health.

Another danger of lowering the standards for entrance into the practice of the healing art, or of setting up different standards for different special methods of treating disease, is that when one of these one-idea or one-method practitioners is licensed, as was done by courtesy in 1913, these practitioners sooner or later utilize other methods of treatment, for which they were not licensed. For example, one newcomer in this city last week advertised that he practiced chiropractic with his hands alone, while another more recent addi-

tion issued the following remarkable advertisement in the *Richmond Times-Dispatch*, Monday, March 10, 1924:

"Realizing fully that chiropractic is not a cure-all, and in the many years of our experience we have learned that by the scientific methods, in addition to chiropractic adjustments, the sick are restored to health much quicker, for this reason we have added to our services many scientific drugless methods, such as the wave exerciser, for renewing life in deadened muscles, paralysis, etc.; the great sunlight treatment, creates circulation, relaxes muscular tissue, used especially on the back before the chiropractic adjustment is given—this makes the adjustment much easier and painless, it is also indicated in stiffened joints and lumbago; auto-condensation, for the treatment of high blood pressure; violet rays, high frequency electrical treatment, etc."

In other words, one who has been licensed in 1913 as a doctor of chiropractic alone, now advertises that many methods of regular medicine will be henceforth used, thus virtually denying the efficacy of the single method, under which, and for which license was originally granted, and thus placing himself on a parity with the licensed general practitioner.

To prevent all such irregularities, all that is asked is that all persons seeking to practice the art of healing in Richmond, shall be treated "alike," with justice to all and special privileges to none, and that the ordinances of the city of Richmond shall uphold the laws of the state.

Correspondence.

An Open Letter to the Medical Profession of Virginia.

Norfolk, Va., March 3, 1924.

To the Editor:

Our profession has been continually stirred up and harassed during recent years by the question of irregular and quack practitioners. The following, or some similar, plan is submitted for discussion.

The Medical Society of Virginia, as representing the great body of regulars, should appoint a committee to go before the State legislature with a statement something like this: "The regular profession of medicine has from time immemorial stood between the general public and the quack, in an honest attempt to protect the former from the ignorance and maliciousness of the latter; the profession has viewed with increasing irritation the accusations by the quacks, and often by the public, that it is jealous and fearful of its own existence and, for that reason, is persecuting the irregulars, and endeavoring to have them refused recognition before the public as properly prepared healers of the sick. The time has come when the profession refuses to be made the goat any longer. It maintains that it is no more its duty than the duty of the law-makers of the State, to protect the lives, health and happiness of the citizenry of this State from the general run of quacks, and it hereby refuses to assume any longer, that responsibility. If you gentlemen wish or think it wise to turn loose on the public, the various and sundry cults and quacks, whose name is legion, let it be distinctly understood that the responsibility is yours: we hereby stand from under.

"The regular profession does not claim anything like infallibility, it acknowledges that it makes mistakes, but it is willing to stand or fall on its merits. It has centuries of honorable history behind it, and its members are able to qualify under the wise provisions laid down already in our State laws, before they offer themselves as custodians of the public health. All that is necessary is that the lawmakers shall see to it that no one be allowed to offer for that high calling, until he shall have qualified himself by preliminary scholastic education, and sufficient, *honest*, medical education and training. There is no necessity for a multiplicity of boards and standards. The State is fully protected now, in that respect: it is now entirely up to you, whether you wish those standards met or not. The regular medical profession, in its own interest will continue to meet those standards and continue to raise them among its own members, as science advances. The regular profession also wishes to serve notice on the various State and municipal officials whose business it is to enforce the laws governing the practice or malpractice of quacks, that it will no longer act as obtainer of evidence, and prosecutor before the court for such law breakers: it has placed itself in this false position long enough, and its efforts have been misjudged alike by the people and the officials."

The State Society, aided by the component societies, should then appropriate enough funds to have its position and its ultimatum to the

legislature well advertised to the public, so that all may know, from now on, where lies the responsibility when John Smith's child has his spine adjusted for tuberculosis, and John Smith's father has his spine adjusted for cancer of the gall-bladder, etc., *ad nauseatum.*

It is submitted for discussion whether this is not the correct way to meet this question of quackery, that will always be with us.

BURNLEY LANKFORD, M. D.

Analyses, Selections, Etc.

Antitoxins, Bacterial Vaccines and Glandular Products With Their Practical Indications.

Dr. Charles Stevens, Baltimore, of the Department of Experimental Medicine, Parke, Davis and Company, in an address recently given before the Wise County (Va.) Medical Society, spoke of how, in the manufacture of diphtheria antitoxin, they first obtained a pure culture of the diphtheria bacilli, by plating-out until all other micro-organisms have been eliminated, leaving a pure culture of the bacilli. Suitable media are then inoculated with the culture and placed in the incubator for a suitable length of time. He gave a description of the filtering of this media, of the filtrate containing the diphtheria toxin, and then the testing of this toxin by means of the method evolved by Professor Ehrlich, and exemplified this by means of a chart showing the test. He stated that this toxin is then injected into the horse, begining with 1/10 c.c. and increasing gradually until 250 c.c. were given the animal. During this time there had formed in his blood stream the antibodies which have the power of neutralizing these large amounts of toxin. The next step was the bleeding of the horse and the separation of the serum, which contains the antibodies, from the blood clot, which is not used in the production of the antitoxin. The serum is then aged and ripened and tested by means evolved by Professor Ehrlich.

Dr. Stevens then spoke of the immunity of bacterial vaccines and the method of obtaining a pure culture of the bacteria necessary to make bacterial vaccines, and showed slides illustrating the various steps necessary to make the finished product. Practical dosages were given and a statement was made as to the value of bacterial vaccines and the indications for their use.

His discussion of glandular products covered the method of identifying the glands by experts or, if necessary, microscopic examination. The glands are obtained only from animals that are free from disease. All extraneous matter generally sent in with glands, such as connective and muscle tissue is removed. Then followed a discussion of the chemical and pharmaceutical problems necessary in the removal of fat, each gland being a problem in itself, as solvents used must only remove the fat without any destruction to the hormone. Care is required in the desiccation, so as to retain in the desiccated portion only the pure gland tissue and its full hormone activity. After this, each gland was discussed individually as to its practical therapeutic indications. The method of standardizing thyroid, pituitary and adrenalin was gone into briefly.

The whole lecture was illustrated by means of stereopticon and slides.

Intestinal Manifestations of Syphilis.

R. Pensaude and L. Rivet state that intestinal syphilis is less frequent than gastric. The intestinal manifestations of hereditary syphilis are rarely isolated and generally accompanied by other specific cutaneous and visceral lesions. They appear the seventh month and develop more or less rapidly and extensively as to whether or not they are treated specifically. The small intestine is more frequently affected than the large, and diffuse or circumscript infiltration is seen with or without miliary gummata. Between the fingers one can feel the thickened mucous membrane and gummatous nodules. Sometimes they ulcerate and perforate into the uterus, which instance has been reported by one author. Spirochetes have been demonstrated in these lesions. Often they form autoptic findings in the stillborn. If the child lives it has diarrhea of an indefinite type but irresponsive to all but specific treatment. The child often dies of cachexia. Hemmorhage may be fatal.

Symptoms in the parents of the child will aid the diagnosis. The Wassermann test will complete it. The mother, especially if nursing, must be treated simultaneously.

The intestinal symptoms of acquired syphilis may develop during the secondary or tertiary stages. Those of the second stage are not well known. They may be : (1) Enteralgia, with common or bloody diarrhea and severe pain, and may be considered the consequence of the

therapy, especially of cyanid of mercury administration; (2) secondary catarrhal enteritis accompanying cutaneous and muco-cutaneous eruptions and in some instances catarrhal icterus; (3) typhoid, which is more serious (the syphilitic typhosis, on the other hand, is benign).

The tertiary manifestations, though rare, are accompanied by other tertiary symptoms. They are generally multiple, dry infiltration, ulcerous softening, followed by sclerosis and possibly shrinkage of the intestine. The thickening of the intestinal walls may be considerable and to touch may appear like a tumor. There may be a peritoneal reaction in the neighborhood. These lesions constitute gummata with periendarteritis. The bacterial proof has so far failed. Clinically the most prominent symptom is diarrhea, which is very persistent and often accompanied by colic of varying intensity and which is sometimes bloody and dysenteric. It yields to specific treatment only, but quickly. If not treated, cachexia may come on and the state may simulate tubercular enteritis. Peritonitis and perforation of the intestine or intestinal hemorrhage may complicate it. Treatment is rapidly effective, but recurrences are frequent.

There is another type—the stenosing, pseudocancerous. This may follow after a period of diarrhea. Often the diagnosis is made only after surgical intervention. These cases are similar to the psuedocancerous gastric syphilis. These syphilomata of the intestine yield rapidly to specific treatment. In some instances the disease involves the colon and rectum.—(*Medicine, Paris*, 1923, IV., 750).

Hepatic Syphilis.

Treponema in the liver may cause hepatitis. It may be hereditary or acquired. This subdivision is not altogether definite. The hereditary development may be early or late, in the fetus or newborn. The infection may occur in the uterus, it may be mixed, both paternal and maternal, or either. It is one of the most frequent causes of death of the fetus. The liver in these cases will look soft and wrinkled and of the color of dead leaves. This liver may be seen in the stillborn or in the newborn during the first two or three months of life, but it also may be seen in the child and the adult. In hepatic syphilis which develops during intrauterine life the infection may be transmitted by the umbilical vein. It is diffuse and involves the entire organ. Very often the fetus dies and is expelled, from the sixth to the eighth month. Sometimes extrafetal ascites may develop which will cause hydramnion. The abdomen of the mother becomes very much extended. She suffers from abdominal compression and dyspnea. The fetal sound and movements stop. In syphilitic hepatitis of the newborn the child will often die within a few days. It is often born prematurely or is frail, weighing from 1,000 to 1,500 grams. The placenta is hypertrophied and weighs 1,000 grams. The child's face is violet and wrinkled. Coryza, simple or hemorrhagic, pemphigus of the hands or soles may develop. Spleen and liver are much enlarged, often growing in size within a few days.

Infants with hepato-splenic disease may be borne at term by a syphilitic who may have been treated during pregnancy. They may seem normal for several weeks and after two months stop growing and develop vomiting and diarrhea. The skin becomes dry and the child looks unhealthy. The abdomen is distended. The increase of the size of the liver may be palpated. The spleen is likewise enlarged. The abdomen is tympanic, but generally no ascites forms. Syphilids and pemphigus, mucous plaques, and fissures in the mouth and at the anus will develop. Sometimes there is periostitis or osteitis of the skull. In some cases icterus may exist from birth. If not treated, the symptoms become worse and go on to convulsions and rapid death. In the hemorrhagic form hemorrhage is seen during the first stages near the umbilicus. Ecchymoses and subcutaneous hemorrhage also in the intestines manifest themselves. In some cases of hereditary syphilis anemia is quite marked.

In the adult there are symptoms of indigestion, anorexia, constipation, enlargement of the liver and spleen. It is hardly possible to distinguish it from certain types of tubercular cirrhosis. In this diagnosis the teeth, eyes, and ears must be noted.

The mother should be treated during pregnancy and the child given the van Swieten remedy, 15 drops in milk three times a day or lactate of mercury 1 to 1,000. Neosalvarsan may be injected into the epicranium or the longitudial sinus. During the second period hectine or mercury, arsenic or bismuth. Gummata of the liver must be treated with mercury and iodids. Surgery does not promise good results.—(*Clinical note. Gaz. d. hop., Paris*, 1923, XCVI., 1146).

The Truth About Medicine

In addition to the articles enumerated in our letter of January 28, 1924, the following have been accepted:

Abbott Laboratories
Butesin Picrate
Butesin Picrate Ointment.
Parke, Davis and Co.
Dibromin.
E. L. Patch Co.
Patch's Flavored Cod Liver Oil.
Vitalait Laboratory of California
Vitalait Culture Bacillus Acidophilus
Wilson Laboratories
Epinephrin—Wilson.
Epinephrin Powder—Wilson.
Epinephrin Solution, 1:1,000—Wilson.

NEW AND NON-OFFICIAL REMEDIES.

Corpus luteum-Lederle.—The fresh substance from the corpora lutea of the hog or cow, dried and powdered. For a discussion of the actions and uses of ovary preparations, see New and Nonofficial Remedies, 1923, p. 219. Corpus luteum-Lederle is supplied in the form of 2-grain tablets only. Lederle Antitoxin Laboratories, New York.

Corpus luteum extract—Lederle.—A sterile solution of those constituents of the corpus luteum which are soluble in water containing sodium chloride 0.85 per cent, sodium citrate 1 per cent, and chlorbutanol 0.5 per cent. Each Cc. contains 0.02 Gm. of soluble matter in addition to sodium chloride, sodium citrate and chlorbutanol. For a discussion of the actions and uses of ovary preparations, see New and Nonofficial Remedies, 1923, p. 210. The preparation is marketed in 1 Cc. ampules and in 5 Cc. vials. Lederle Antitoxin Laboratories, New York.

Ovarian residue—Lederle.—The residue from the fresh ovaries of the hog or cow after the ablation of the corpus luteum, dried and powdered. For a discussion of the actions and uses of ovary preparations, see New and Nonofficial Remedies, 1923, p. 210. Ovarian residue—Lederle, is supplied in the form of 3-grain tablets only. Lederle Antitoxin Laboratories, New York.

Silver nitrate solution 1 per cent.—Lederle.—An aqueous 1 per cent solution of silver nitrate contained in ampules composed of beeswax. The preparation is intended for the prophylaxis of ophthalmia neonatorum. For use, a pin hole is made in the ampule and, after suitable preliminary cleansing of the eye, two drops are placed in each eye of the newborn. Lederle Antitoxin Laboratories, New York.

Whole ovary—Lederle.—Whole ovarian glands of the hog or cow, freed from extraneous matter and dried at or below 38 C. For a discussion of the actions and uses of ovary preparations, see New and Nonofficial Remedies, 1923, p. 210. Whole ovary-Lederle is supplied in the form of 5-grain tablets only. (Jour. A. M. A., Feb. 2, 1924, p. 391).

Flumerin—H. W. and D.—Disodium-2-hydroxymercurifluorescein. The disodium salt of 2-hydroxymercurifluorescein. Flumerin H. W. and D., when injected intravenously, is tolerated by rabbits in doses containing from eight to twenty times the amount of mercury present in the therapeutic dose of other mercurial drugs commonly used. When injected into rabbits with syphilitic lesions, the drug brings about resolution of the lesions without apparent injury to the kidney. When injected intravenously into man in doses of 3 mg. per Kg., flumerin has caused the disappearance of spirochetes from primary and secondary syphilitic lesions. Flumerin has brought about resolution of the lesions and in about one-half the cases changed a positive blood Wassermann reaction to negative. In tertiary syphilitic lesions resolution of the lesions with a disappearance of a positive Wassermann was brought about in a majority of cases treated. The dose of flumerin—H. W. and D., is from 0.002 to 0.005 Gm. per Kg. of body weight injected intravenously in 2 per cent aqueous solution. The drug is marketed in tubes containing respectively 0.15 Gm., 0.20 Gm., 0.25 Gm. and 0.30 Gm. Hynson, Wescott and Dunning, Baltimore. (Jour. A. M. A., Feb. 9, 1924, p. 469).

Epinephrin—Wilson.—A brand of epinephrin—N. N. R. Made from the suprarenal gland. For a discussion of the actions, uses and dosage of epinephrin, see New and Nonofficial Remedies, 1923, p. 112. Epinephrin—Wilson, is marketed in the form of epinephrin powder—Wilson (vials containing epinephrin—Wilson, 1 grain), and epinephrin solution, 1:1,000—Wilson (containing epinephrin sulphite equivalent to 1 part ephinephrin—Wilson in 1,000 parts of physiological solution of sodium chloride). Wilson Laboratories, Chicago. (Jour. A. M. A., Feb. 23, 1924, p. 531).

PROPAGANDA FOR REFORM.

Immunization Against Typhoid.—Ordinarily typhoid vaccine is administered at intervals of seven days. It is said that if the interval is less than seven days, the immunity may be less than after longer intervals. It is asserted also that the maximum response follows when the intervals between the injections are lengthened to eighteen or twenty days. No definite statement can be made as to what the optimal intervals really are. Immunity after antityphoid inoculation is not absolute. Army medical officers express the opinion that immunity from inoculation begins to decline in from two to two and one-half years; but even after four and five years, the typhoid rate of inoculated troops has been estimated at about one-fourth that of uninoculated troops. (Jour. A. M. A., Feb. 2, 1924, p. 411).

Treatment of Lichen Planus.—Lichen planus can be usually successfully managed by the intramuscular injection of some preparation of mercury. Mercuric chlorid is commonly employed in a dosage of 0.015 gm. (one-quarter grain) twice weekly. A 1 per cent solution of this drug in physiologic sodium chlorid solution is prepared, and 15 drops injected at the first dose, 20 the second and subsequently 25 at each injection. From eight to sixteen injections are commonly sufficient to clear up the disorder. Local measures for relief of itching may be employed at the same time. (Jour. A. M. A., Feb. 2, 1924, p. 411).

The Absorption of Epinephrin.—Although epinephrin is absorbed from the mucous membranes of the nose, throat, mouth, urethra, vagina and rectum, the effectiveness of such modes of introduction is too uncertain to make them popular. The drug is not absorbed from the gastro-intestinal canal to induce any appreciable effect. Intravenous administration must be used with extreme caution and the manifestations secured are likely to be rather evanescent. The response to intramuscular injection is considerable. There is a widespread belief that the subcutaneous administration of epinephrin causes little effect and that the action is decidedly uncertain. However, the relief which is secured from the hypodermic injection of epinephrin in asthmatic patients is evidence that absorption by this route is rapid and satisfactory. It probably proceeds by lymphatic rather than by blood vascular channels. (Jour. A. M. A., Feb. 9, 1924, p. 473).

The Insulin Reserve.—It is highly probable, according to R. N. Wilder, that patients with the acute type of diabetes will in a few years lose all native tolerance for glucose, and become completely dependent on insulin. In such cases 37 units (old

standard) of insulin may be required, and in some cases as much as 56 units a day. A partially diabetic patient may suddenly be converted into a totally diabetic patient by infection and, therefore, a month's supply of insulin should be kept on hand. Reginald Fitz and William P. Murphy state that there are two classes of diabetic patients: those to whom insulin is a luxury and those to whom it is a necessity. They hold that the wise physician will conserve the use of insulin to the cases of such diabetic patients as can dispense with it or use only small amounts and will hold it in reserve as an indispensable product, for the patients who require large amounts in order to secure definite results. (Jour. A. M. A., Feb. 9, 1924, p. 473).

"Lime Starvation" and "Neu-bone."—A series of articles by Alfred W. McCann, is now appearing in the New York Evening Mail, in which it is asserted tbat there is a deep laid plot on the part of the New York Tuberculosis Association, the New York Health Commissioner, or the American Medical Association, to keep from the medical profession and the public the alleged fact that there is a treatment for tuberculosis infinitely more efficacious than that now employed. This treatment is stated to be based on the theory that tuberculosis is caused by lime starvation. McCann tells us that the originator of the "lime starvation" theory of treatment is one John A. Russell, and he also brings in the name of William Grant Hague, as one of the chief apostles of Russell's theory and treatment and proposes the use of a calcium preparation "Neu-bone." For more than twenty-five years Russell has been riding the "lime starvation" hobby. For nearly ten years a New York concern has been exploiting the "Russell Emulsion" and the "Russell Prepared Green Bone." A few years ago, William Grant Hague was going around the country delivering lectures before medical societies, advertising the Russell products. The statements about Neu-bone suggest that this is the Russell Prepared Green Bone under a new name. The medical profession is thoroughly familiar with the lime starvation theory and treatment. It has been weighed in the balance of therapeutic and clinical tests and found wanting. In 1917, the Council on Pharmacy and Chemistry reported on the Russell products and stated that the over-worked lime starvation theory certainly lacked any tangible confirmation. (Jour. A. M. A., Feb. 9, 1924, p. 489).

Treatment of Pernicious Anemia.—Arsenic and blood transfusion are the two established forms of therapy in the treatment of pernicious anemia, though neither is curative. Arsphenamin in doses of 0.03 to 0.06 gm. intramuscularly at intervals of days or weeks has been found useful in some cases, though it has failed in others. (Jour. A. M. A., Feb. 9, 1924, p. 491).

Frozen Toxin-Antitoxin.—Students in two Massachusett's institutions were inoculated with diphtheria toxin-antitoxin mixture, and thereafter, forty-four suffered severe local and constitutional reactions. Investigation revealed the fact that the serums used had been subjected to extremely low temperature and later thawed before injection. It was discovered tbat freezing dissociates the combination of toxin and antitoxin. (Jour. A. M. A., Feb. 16, 1924, p. 552).

Ichthyol and Ichthalbin Omitted from N. N. R.—The Council on Pharmacy and Chemistry publishes a report announcing the omission of Ichthyol and Ichthalbin from New and Nonofficial Remedies and a report on the therapeutic value of Ichthyol on which the deletion of Ichthyol and Ichthalbin is based. Ichthyol was introduced into dermatology about forty years ago, and it came into wide use during its skillful exploitation. It has been difficult to obtain acceptable evidence concerning the therapeutic value of Ichthyol. The opinion in regard to its value has been divided with good observers on both sides of the question. After some years of consideration and doubt, the Council has come reluctantly but decisively to the conclusion that there is no satisfactory evidence that Ichthyol has any therapeutic value other than that of a mild antiseptic and that of being soothing to inflamed mucous membranes. Merck and Co., who market the product in the United States, declined to limit their claims so as to harmonize them with the views of the Council, and, therefore, the Council has omitted Ichthyol from New and Nonofficial Remedies. The Council also omitted Ichthalbin, marketed by E. Bilhuber, Inc., New York. Ichthalbin is described as a compound of ichthyolsulphonic acid and albumin. Its actions are stated to be essentially the same as those of Ichthyol. Therefore, E. Bilhuber, Inc., was informed that, unless the therapeutic claims made for Ichthalbin conformed to the claims permissible for Ichthyol, Ichthalbin would be omitted from New and Nonofficial Remedies. Circulars in use during 1922 contained recommendations for the internal use as an intestinal antiseptic and in skin diseases. Since these claims were incompatible with the evidence obtained by the Council, Ichthalbin was omitted. (Jour. A. M. A., Feb. 16, 1924, p. 565).

Carbon Tetrachlorid for Hookworm.—Carbon tetrachlorid is at present obtaining such an amount of favorable notice that, unless subsequent experience demonstrates as yet unknown dangers, it may be considered a suitable method for the treatment for hookworm. The drug is palatable, requires no preparation of the patient and is relatively nontoxic. The only fatal results so far recorded were associated with the use of an impure product. The commercial product is unfit for use. Hence, the New and Nonofficial Remedies quality should be insisted on by prescribing carbon tetrachlorid Medicinal—N. N. R. The dosage generally recommended is 0.2 Cc. (3 minims) for each year of life; with an adult a dose not exceeding 3 Cc. In prescribing, one may order twice the amount indicated for a single dose, and the patient may be instructed to repeat the dose at an interval of fourteen days. It is simply administered from a tablespoon which has been half filled with sweetened water. It is usually best to administer magnesium sulphate two hours after the drug is given. (Jour. A. M. A., Feb. 16, 1924, p. 569).

Book Announcements

Hernia. Its Anatomy, Etiology, Symptoms, Diagnosis, Differential Diagnosis, Prognosis, and Operative Treatment. By LEIGH F. WATSON, M. D., Associate in Surgery, Rush Medical College, Chicago. 232 original illustrations by W. C. SHEPARD. St. Louis. C. V. Mosby Company. 1924. 8vo. 660 pages. Cloth, $11.00.

The scope of the book is abdominal hernia. The subject is well covered and in detail. The author's introduction is a concise history of the subjects of surgery and hernia from ancient times to the nineteenth century. This section alone gives the book value.

Though every variety of abdominal hernia is given free and comprehensive discussion, the two largest sections of the work are General Considerations of Hernia and Inguinal Hernia.

The standard operations are discussed in detail. In the case of those not standardized, the description is sufficient for the principles to be clearly defined. Very few operations with any pretention to merit are omitted.

We regret the viewpoint of the author as to the percentage of congenital defects in the inguinal region, as it is out of harmony with the percentage of congenital defects in other parts of the body.

To assemble and digest the material for this work has required years of painstaking labor. There has been a need for just such a book. It fills the requirements. To the young surgeon it will be a valuable text-book and guide; to the older surgeon it will be a comfort as a reference.

J. W. Henson, M. D.

Operative Surgery. Covering the Operative Technic Involved in the Operations of General and Special Surgery. By WARREN STONE BICKHAM, M. D., F. A. C. S., New York City, Former Surgeon in charge of General Surgery, Manhattan State Hospital, New York; Former Visiting Surgeon to Charity and to Touro Hospitals, New Orleans. In 6 octavo volumes totaling approximately 5,400 pages with 6,378 illustrations, mostly original, and separate Desk Index Volume. Vol. III. contains 1,001 pages with 1,249 illustrations. Philadelphia and London. W. B. Saunders Company. 1924. Cloth, $10 per volume. Sold by subscription only, Index Volume free.

The Biology of the Internal Secretions. The Endocrine Factor in Development, in Subnormalities, in Neoplasms and Malignancy, in Nervous and Mental Diseases and in Heredity. By FRANCIS G. DERCUM, M. D., Ph.D., Professor of Nervous and Mental Diseases in Jefferson Medical College. Philadelphia and London. W. B. Saunders Company. 1924. Small 8vo. 241 pages. Cloth. Price, $2.75.

Methods in Medicine. The Manual of the Medical Service of George Dock, M. D., Sc.D., formerly Professor of Medicine, Washington University School of Medicine, St. Louis. By GEORGE R. HERRMANN, M. D., Ph.D., Instructor in Medicine, University of Michigan; Formerly Assistant in Medicine, Washington University, etc. St. Louis. C. V. Mosby Company. 1924. 521 pages, illustrated. 8vo. Cloth. Price, $6.50.

The Antidiabetic Functions of the Pancreas and the Successful Isolation of the Antidiabetic Hormone—Insulin. By J. J. R. MACLEOD, Professor of Physiology, University of Toronto, and F. G. BANTING, Research Professor, University of Toronto. Beaumont Foundation, Annual Lecture Course II. 1923. The C. V. Mosby Company. St. Louis. 8vo. 69 pages. Cloth. Price, $1.50.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on All Medical and Surgical Subjects, by Leading Members of the Medical Profession Throughout the World. Edited by HENRY W. CATTELL, M. D., Philadelphia, with Collaborators. VOLUME I. Thirty-fourth Series, 1924. Philadelphia and London. J. B. Lippincott Company. 1924. 308 pages, illustrated. 8vo. Cloth. $10 a year.

Applied Pathology in Diseases of the Nose, Throat, and Ear. By JOSEPH C. BECK, M. D., F. A. C. S., Associate Professor of Laryngology, Rhinology and Otology, University of Illinois, College of Medicine; Chief of Staff, Otolaryngology, North Chicago Hospital. St. Louis. C. V. Mosby Company. 1923. 8vo. 280 pages with 268 original illustrations, including 4 color plates. Cloth. Price, $7.50.

National Health Series. Edited by THE NATIONAL HEALTH COUNCIL. Funk and Wagnalls Company. New York and London. 1924. 16mo., full flexible fabrikoid. Average number of words per volume 18,000. Price per volume 30 cents. Complete set of 20 volumes (ready about May 1, 1924). $6.00.

The first five volumes of this series, now ready, are:

Cancer: Nature, Diagnosis and Cure. By Francis Carter Wood, M. D., Director, Institute for Cancer Research, Columbia University.

Man and the Microbe: How Communicable Diseases are Controlled. By C. E. A. Winslow, Dr. P. H., Professor of Public Health, Yale School of Medicine.

Community Health: How to Obtain and Preserve It. By D. B. Armstrong, M. D., Sc. D., Executive Officer of the National Health Council.

The Baby's Health. By Richard A. Bolt, M. D., Gr. P. H., Director, Medical Service, American Child Health Association.

Personal Hygiene: The Rules for Right Living. By Allan J. McLaughlin, M. D., Surgeon United States Public Health Service.

Each of the five volumes covers a subject of vital importance to the general public. The language is non-technical and easily understood. They are compactly written but are so clearly expressed that the layman will not have to wade through pages of non-essential matter and technical phraseology to get at the truths he seeks.

The New Science of Radiendocrinology in its Realm in Rejuvenation. Based on the Radiation Technique of Dr. Eugen Steinach, of Vienna. By HERMAN H. RUBIN, M. D., Director of the American Institute of Radiendocrinology. Member of American Association for the Advancement of Science, the American Medical Association, etc. Medical Science Publishing Company. 7 East 43rd Street, New York City. 1923. 12mo., cloth. 64 pages.

Virginia Medical Monthly

FOUNDED BY LANDON B. EDWARDS, M. D., APRIL, 1874.
OWNED BY THE MEDICAL SOCIETY OF VIRGINIA.
PUBLISHED BY THE PUBLISHING COMMITTEE.

A. G. BROWN, Jr., M. D., Chairman, Richmond, Va.

B. R. TUCKER, M. D., Richmond, Va.
P. W. HOWLE, M. D., Richmond, Va.
E. L. KENDIG, M. D., Victoria, Va.
A. L. GRAY, M. D., Richmond, Va.

ALEX. G. BROWN, Jr., M. D., Editor.

AGNES V. EDWARDS, Business Manager and Secretary-Treasurer.

All correspondence regarding editorial matters, articles, advertisements, subscription rates, etc., should be addressed to the Journal.

All advertisements are received subject to the approval of the Council on Pharmacy and Chemistry of the American Medical Association.

Subscription Price: $2.00 per annum in advance.
Single Copies 20c.

Vol. 51. APRIL, 1924 No. 1

Editorial

Virgina League for Health Education and Medical Progress.

The progress of medical science is dependent largely upon the efforts of the medical profession, which must not only initiate and test the advances in modern science, but also must instruct the public as to the necessity and advantage of these, relative to personal and public health.

It is believed by many, that physicians, as a rule, are more interested in their practice than in their profession, and that the physicians do not, in many matters in which they seek the aid of the people, take the public sufficiently into their confidence. Consequently, the people at large are not materially interested in these matters, because they are not informed, or falsely informed; and as a result, do not co-operate in progressive methods intended for their relief.

The profession needs this assistance and, to this end, the Virginia League for Health Education and Medical Progress was organized at the last meeting of the Medical Society of the State of Virginia in Roanoke. The League's officers and membership will consist of physicians, the allied professions, nurses, laymen, and members of the Woman's Auxiliary of the Medical Society of Virginia, all being representative of the different sections of the state, who will form local groups or units that will co-operate with the Executive Stall of the League, and thus assist in the work of health education and medical progress, all to be under the direction and auspices of the State Medical Society, and all to co-ordinate their work with existing accredited boards and committees.

This plan of organization, seeking for the first time the direct co-operation of the laity with the profession, received the unanimous endorsement of the Executive Council, the House of Delegates, and of the Society, and appeals to the physicians, especially to aid in carrying out its purposes along the lines indicated.

The necessity for some such organization has been notably apparent recently, for the ignorance of many citizens in regard to essential matters pertaining to personal and public health, as well as to the progress of scientific medicine, is almost unbelievable, and has been unfortunately illustrated in many sections of the state by the lack of education regarding the use and value, for instance, of the Schick test, toxin-antitoxin for the prevention of diphtheria, the importance of malnutrition, etc., and in the recent General Assembly, relative to the tenets and claims of certain sectarian cults in the practice of the art of healing.

The purposes, in brief, of the League which will be advocated, both locally and otherwise, will be, among other things, the following:

1. Personal and Public Health Instruction;
2. Periodic Health Examinations;
3. Pre-natal Care and Child Welfare;
4. Conservation of the Health and Sight of Infants and Children of the pre-school age;
5. Necessity of "taking stock," mentally and physically of School children, and of Dental Hygiene;
6. Information relative to Cancer and Tuberculosis and Prevention of Heart Disease.
7. County Sanitation and Institutional Reforms;
8. Information regarding Medical Progress;
9. Information to laymen and profession as to the various dogmas of sectarian cults:
10. Instruction of the laity as to some of the community medical problems and diseases, and their prevention, and
11. When deemed feasible and advisable by the Executive Staff Officers, a State Health Exposition shall be held in some city in the state.

Treatment of disease is not the only important function or duty of the doctor's life; the public should have certain basal information

regarding health and the progress of medicine, not the schisms of the profession, nor the merits of certain methods, but sufficient knowledge regarding disease of the entire human system, to safeguard itself, and to protect life against any practitioner who does not show, and prove by examination some conception of what constitutes disease.

This is a task which will not be easy of realization, and it will be slow in its accomplishment, but it is one that should appeal to every physician who truly loves his profession and realizes his obligations.

Organization of County Medical Societies for Promoting Periodic Medical Examinations.

In the March issue of the *American Medical Association Bulletin*, B. L. Bryant, Bangor, Maine, secretary of the Maine Medical Association, has an article under the above caption. As we have recently had much to say along these lines in our editorial columns, we take the liberty of reproducing it.

Two years ago the Maine Medical Association voted at its annual meeting to co-operate with the other health agencies of the State in carrying out a campaign for periodic health examinations. In a quiet way we have been working with the profession and through the agencies of volunteer health organizations to reach the public, but up to a few months ago, had made no effort for a concerted drive.

Now, however, the Committee of Public Relations of the Maine Medical Association has made out a plan of campaign which has been approved by the State Board of Health and the Maine Public Health Association and which is now being put into operation.

MAINE PROGRAM

1. Among physicians (two objects). (*a*) Value and necessity of periodic health examinations. (*b*) Methods and technique of conducting them.

State Journal: Monthly articles and printing of blanks.

State Association: Speakers and general demonstrations at annual meetings.

County Societies: One meeting devoted to the subject, led by a team of three or more: One from the state department of health, one from the state public health association and one from the state medical association. Other speakers furnished on request.

Organization of county committees of public relations under the direction of the committee of public relations of the state association; these committees to have charge of the work of their counties in detail.

Co-operative health clinics by the three major associations, with demonstrations.

General: Mailing to each physician in the state a personal letter with instructions and blanks by the state medical association; also a personal letter from the state board of health and the Maine Public Health Association.

2. Among citizens.

State Board of Health: Through its bulletins.

Through all its officers in the field and various departments, especially child welfare and nursing.

Maine Public Health Association: Through its publications.

Through affiliated societies.

Public press.

Public health nurses.

Various departments, such as the cancer division, emphasizing the necessity of general physical examinations to discover the special defects covered by these immediate fields.

A standard lecture prepared by the three groups but issued in the name only of the state department of health and the Maine Public Health Associations; this lecture to be circulated and read before all lay organizations.

In order to carry out any program of this kind successfully, we must appeal first to the physicians as a body and to the physician as an individual. He must see the necessity and importance of the work and must be educated in the best technical methods of carrying it out. This cannot be done by revival meeting methods, but by months and years of educational work.

We cannot expect the profession to change in one night from traditional pathological to progressive preventive medicine. It will perhaps be impossible for some, especially the older men, unless finally driven by the demands of their own clientele. They must be impressed with the fact that we, as a profession, are further away from our public than any other business or profession. That this will at the same time be doing the greatest possible service for the public and bring the physician and the people he is to serve in closer contact, beside being the best antidote possible for the popular cults.

In our campaign, we approach the physician first, because, unless he is in a receptive mood and ready to co-operate with those who come to him, the program never can succeed. He should realize the necessity for the work and the methods required, besides the great need for co-operation. This work among physicians will be a co-operative one led by the state medical association assisted by the state board of health and Maine Public Health Association.

Articles on health examination will be carried in the state journal. We have had an examination blank printed, simplified somewhat from that issued by the American Medical Association. For a busy practitioner it must be so simple that he can comprehend it at once. If you make a thing too complicated, he won't have anything to do with it. This is printed in duplicate and folds at the back with columns running up and down instead of across. On the side of the blank there is space for name and address for filing. By slipping in a piece of carbon, you have a duplicate when you make the examination, so when finished it can be torn in two and the patient given one blank and the other retained for the physician's file. If, by using this simply as a guide, we can succeed in getting a good thorough examination without a blank, we shall have accomplished a great deal.

Preparatory work has been going on for some time through the meetings of the county societies, conducted by the various officers of the state medical association, the president, secretary and councilors. This will be continued systematically by its committee of public relations, a co-operative committee made up of physicians from the three major health groups, including officers and members of the state board of health and the Maine Public Health Association. Under their direction, county committees have been appointed in nearly all the county societies. These committees will have charge of the detail work in the counties. They will arrange meetings, select speakers and help make the proper contact with the lay organizations.

Co-operative health clinics have already proved a great success. They have been carried through in different parts of the state and more have been planned. These clinics are arranged by the three major groups in conjunction with a community or group of county societies. Medical and surgical clinics are held in the hospitals forenoons, while the afternoon meetings are arranged, one by the state board of health, the other by the Maine Public Health Association. A general union meeting is held the first evening, ending with a banquet for the purpose of a general getting together of all three groups, physicians, nurses and lay workers. Talks are given by the principal speakers of the different meetings, thus bringing the workers of all groups together and offering opportunity of closer acquaintance with each other and the different branches of the whole health plan. These clinics have been very successful.

Unfortunately, our medical school which had been doing first-class work for a century, was deleted during the high tide of hysterical medical reform and sacrificed to the fetish of an arbitrary standard of organization. When it needed the helping hand most and time and assistance of reorganization, it received the axe. For this reason it will be very difficult to provide the necessary post-graduate instruction for this work of health examination which we had planned among other things, before being deprived of our teaching center.

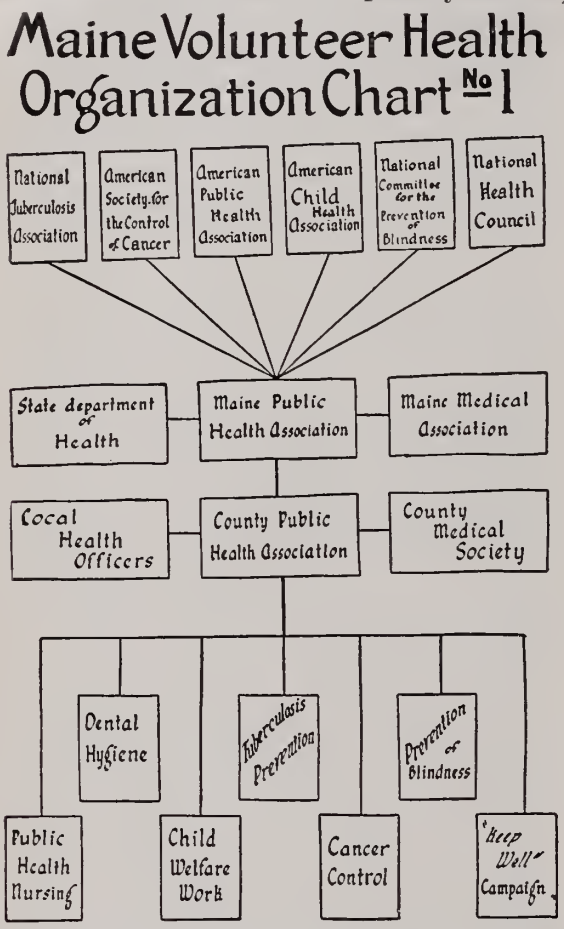
We are mailing to each physician a personal letter together with blanks and a reprint of instructions on the necessity and methods of making proper health examinations. This will be followed later by other letters from the state department of health and Maine Public Health Association. All physicians will be advised to impress on their patients in a personal way the value of coming once a year at least for a thorough physical examination.

This closes the campaign as planned among physicians, and it will be carried out just as soon as possible, but sustained over a long period.

As for the campaign among members of the laity, we considered it not good policy for physicians to appear as a group in conducting this campaign, nor wise for them to go out and issue an invitation for the public to come into their offices. This would be interpreted as a scheme for the personal advantage of the physician, who would profit from the examination. The more the physician keeps out of this game the better.

This campaign will be conducted solely by the state board of health and the Maine Public Health Association. Under the state department of health the state is divided into districts, each in charge of a state health officer.

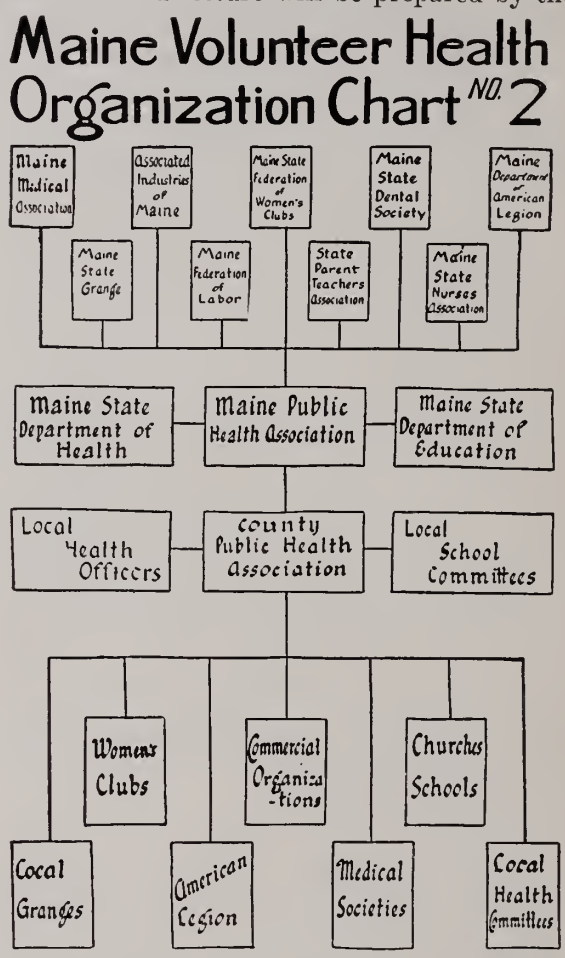
These officers will be instructed how in general to get the idea to the people in their health meeting talks. Their department of nursing and of child welfare will be especially efficient,



having charge of all public health nurses, both of the state department and of the Maine Public Health Association.

The Maine Public Health Association, through its publications, its affiliated societies and the public press, is better able than anyone else to carry on a publicity campaign. There would be no feeling that any physician is in any way advertising himself or getting any advantage from carrying out this work. Through the public health nurses and through various departments, such as the cancer division, a thorough canvass will be carried out in conducting the campaign, emphasizing the necessity of general physical examinations to discover special defects. This will be done, not only by the cancer division, but by the dental hygiene division, the nursing division, the child welfare division and the anti-tuberculosis division where it is absolutely necessary to emphasize the importance of discovering specific diseases by this general overhauling or thorough physical examination.

A standard lecture will be prepared by the



three groups, but issued in the name of the state health department and the Maine Public Health Association. This lecture is to be circulated and read before the lay organizations, such as organized labor, Women's clubs, churches and all others affiliated with this group. We are doing this successfully in the cancer division with the public health association at the present time.

A brief consideration of these charts of the Maine Public Health Association will show the channels through which this campaign of educating the public is to be conducted.

The three major groups, the State Department of Health, the Maine Public Health Association and the Maine Medical Association with all the affiliating societies as shown on the charts are conducted in such a manner that they are able to act as a unit through a com-

mittee of public relations. This committee is made up of the Health Commissioner, the president of the Maine Public Health Association, the secretary and editor of the *Maine Medical Journal*, and three others, physicians prominent in health work.

News Notes

Staunton our Convention City.

The doctors of Staunton and Augusta County are showing great interest in the annual meeting of the Medical Society of Virginia to be held in Staunton, October 14, 15, 16 and 17, and are anxious to have a large attendance. With a view to looking after the various details of the work incident to the meeting, an executive committee and a number of sub-committees have been appointed. These are as follows, the first named being chairman of the committee:

EXECUTIVE COMMITTEE

Drs. Alex. F. Robertson, Jr., T. W. Hankins, H. F. White, J. L. Alexander, H. G. Middlekauff, and T. M. Parkins.

SUB-COMMITTEES

Finance—Drs. R. P. Bell, D. T. Gochnauer and M. P. Jones.

Entertainment—Drs. Kenneth Bradford, Guy R. Fisher, W. M. Phelps, H. F. White and J. S. DeJarnette.

Hotels—Drs. George H. Thomas, H. M. Wallace and C. C. Jones.

Meeting Halls and Committee Rooms—Drs. J. E. Womack, J. F. Hubbard, H. M. Rowan and J. W. Freed.

Commercial Exhibits—Drs. J. F. Fulton, T. S. Richardson and Kon Wyatt.

Scientific Exhibits—Drs. W. S. Whitmore, Glenn Campbell and C. D. Underhill.

Badges and Printing—Drs. C. W. Putney, J. B. Stone and L. L. Putney.

Publicity—Drs. H. G. Middlekauff, C. P. Obenschain and F. H. Crawford.

Automobiles—Drs. F. M. Hanger, J. B. Rawlings and J. H. Thomas.

Reception—Drs. M. J. Payne, J. B. Catlett, R. S. Griffith, W. F. Hartman, I. H. Trimble, R. P. Bell, W. C. Roller and A. L. Tynes.

Golf—Drs. H. S. Henkel, G. F. Hollar, C. M. Blackford and C. P. Rexrode.

Ladies—Mrs. F. M. Hanger, chairman.

Law to Preserve Racial Integrity.

Dr. W. A. Plecker, State Registrar of Vital Statistics, announces that Senate Bill 219, to preserve racial integrity, passed the House on March 8, 1924, and is now a law of this State. "It shall hereafter be unlawful for any white person in this State to marry any save a white person, or a person with no other admixture of blood than white and American Indian. For the purposes of this act, the term 'white person' shall apply only to the person who has no trace whatsoever of any blood other than Caucasian; but persons who have one-sixteenth or less of the blood of the American Indian and have no other non-Caucasic blood shall be deemed to be white persons."

All persons born before June 14, 1912, when birth registration became effective, may yet be registered as to color and birth, upon application, and these registrations will be preserved by the State. Cards and information concerning this should be secured from your local registrar or from Department 1924 Law, Bureau of Vital Statistics, Richmond, Va. Send 25 cents (not stamps) to cover cost of recording this data.

Clinical Congress, American College of Surgeons.

The Virginia-West Virginia branch of the Clinical Congress, American College of Surgeons, will hold its annual meeting in Richmond, on May 2nd and 3rd. Dr. J. Shelton Horsley, Richmond, is chairman of this organization, and Dr. Murat Willis, also of Richmond, secretary. It is planned to hold clinics at the various hospitals of the city—St. Luke's, Grace, St. Elizabeth's, Johnston-Willis, Stuart Circle, Memorial, St. Philip's, Dooley, and Retreat—in the mornings of both days. The scientific papers scheduled for this meeting will be read on the afternoon of the 2nd of May and a public meeting will be held at Jefferson Hotel that evening. The closing session on the afternoon of the 3rd will be given over to a discussion of the business affairs of the organization.

Drs. Robert C. Bryan, Charles R. Robins and W. Lowndes Peple compose the local committee in charge of affairs.

A New Measuring Board for Babies.

The United States Bureau of Standards has co-operated with the Children's Bureau of the United States Department of Labor in designing and building a new and much-improved

board for measuring babies. A patent has been applied for by the Bureau of Standards and will be dedicated to the public in accordance with government policy.

The board consists of a flat base upon which the baby is placed, lying down, with movable wooden "slides" at right angles to the base, one at the foot and one at the head. The measuring scale is in a hollowed groove in the base.

There are two striking differences between this new board and those most commonly used. First, it has *two* movable slides instead of one, and second, readings may be taken from the *outside* of the slide which rests against the baby's head, instead of from the inside.

The advantage of having two movable slides is that the baby may be placed on the board, quickly, comfortably, and with a minimum of handling. Both slides are adjusted to his height (or length) at whatever point between the two he may be placed.

It is also a distinct advantage to be able to make outside readings. On the usual measuring scale the baby's position on the board frequently interferes with a clear view of the scale and makes readings from the inside of the slide difficult. No such difficulty exists to interfere with accurate and speedy readings on the new board.

The measuring scale on the new board is furnished by a meter stick to one end of which the foot slide is attached. This meter stick fits into the slot or groove running down the center of the board and may be moved back and forth as required by the position of the babies being measured. (The Children's Bureau employs the centimeter scale for measurements used as the basis for scientific reports and the inch scale in its popular demonstrations). The measurement is shown by a brass indicator screwed to the outside of the head-slide with a pointer projecting over the edge of the slot in which the meter stick moves. An accurate reading can be made from the outside of the slide to which the indicator is attached because the distance from the baby's head (which touches the inside of the slide) to the pointer is equal to and compensates for the distance from the foot slide to zero point on the meter stick.

Further information about how to make or to purchase measuring boards of this design may be secured from the Chief of the Children's Bureau at Washington. A photograph of the board may also be secured.

Doctor Elected Mayor of Richmond.

Dr. J. Fulmer Bright, a practicing physician of Richmond. Va., was given the Democratic nomination as mayor of this city, in the primaries held on April 1st. This is equivalent to his election in which case he enters upon his duties on September the 1st. Dr. Bright is a native of Richmond and an alumnus of the Medical College of Virginia.

In offering its congratulations to Dr. Bright, the medical profession wishes him success in his administration.

Honored for Fifty Years of Service.

Dr. Llewellin Eliot, Washington, D. C., one of the oldest living graduates of Georgetown University School of Medicine, last month celebrated his fiftieth year of active practice. His friends honored him by giving him a reception at his home in that city, and the medical faculty of the Georgetown University School of Medicine presented him with a loving cup, the presentation speech being made by Dr. George M. Kober, dean of the school.

Though of advanced age, Dr. Eliot still engages actively in consulting practice and contributes to scientific periodicals. He is an ex-president and interested member of the Medical Society of the District of Columbia and was an associate editor of this journal, under its former management.

Pediatric Society Organized.

The Richmond Pediatric Society was organized February 7th, at the Westmoreland Club, this city, upon call of Dr. N. Thos. Ennett.

The following officers were elected: Dr. N. Thos. Ennett, President; Dr. St. George T. Grinnan, Vice-president; Dr. Thos. D. Jones, Secretary. The Executive Committee is composed of Drs. St. Geo. T. Grinnan, Thomas D. Jones and Henry S. Stern; the program committee includes Drs. Howard Urbach, Basil B. Jones and J. B. Stone.

This is purely a scientifice society and only those who limit their practice to Pediatrics are eligible to membership. Meetings are held on the first Thursday night of each month.

This is the only Pediatric Society in the State of Virginia, and its founders express the hope that it will do much toward stimulating the general practitioner to a better under-

standing of the care and treatment of the diseases of infancy and childhood.

The Walter Reed Medical Society

Will hold its next meeting at Newport News, Va., May 14 and 15, under the presidency of Col. L. A. Thomson, M. C., National Soldiers Home, Va. Dr. L. E. Stubbs, of Newport News, is secretary. This is the annual meeting of the Society, at which all business of the organization is transacted. An interesting program is also being arranged. At this meeting, it is expected that some action will be taken regarding co-operation with other societies in the purchase of the birthplace of Dr. Walter Reed, and it is hoped that sufficient interest will be aroused to suitably mark and keep up the place in question.

Lectures in Medical Hydrology.

A course of lectures in Medical Hydrology, supplemented by demonstrations in London and by a study tour to Bath and Cheltenham, is to be given at the University of London in the week commencing May 5th. Particulars may be obtained on application to Hon. Sec., Hydrology Teaching Committee, care University Extension Department, University of London, Imperial Institute Road, South Kensington, S. W.-7. The fee for the course is three guineas.

Hygeia—The Health Magazine.

In these days when every one is seeking all possible information about health matters, why not suggest to your clientele to subscribe to "*Hygeia*," the layman's magazine on health matters? This will *not* give perverted ideas and is interesting reading. It is published in Chicago, under the auspices of the American Medical Association, and has the sanction of the medical profession.

Dr. J. B. McKee,

Recently of Woodson, Va., is now located at Plasterco, Va.

Richmond to Lose Good Health Officer.

Dr. C. C. Hudson, health officer of Richmond, Va., has accepted an offer to take charge of the combined health unit of Greensboro and Guilford County, North Carolina, and will enter upon his new duties on May the 1st. Dr. Hudson is an alumnus of the Medical College of Virginia and first worked with the Richmond Health Department in 1910. Later, he went to Danville, Va., and to Charlotte, N. C., returning to Richmond from the last named place in 1920, shortly after the present form of government became effective. Dr. Hudson is a specialist in organization work and has helped make the Richmond Bureau of Health one of the most effective in the country.

Dr. E. C. Levy, director of public welfare of Richmond, states that Dr. Hudson's successor has not been named at this time.

Dr. R. L. Raiford,

Sedley, Va., announces the opening of offices in Franklin, Va., for the practice of diseases of the eye, ear, nose and throat.

The Virginia Society of Oto-Laryngology and Ophthalmology

Meets at Lynchburg, Va., on April the 13th. This Society is composed of specialists in Virginia and the membership is now in excess of sixty. Dr. J. A. White, of Richmond, is president, Dr. James Morrison, Lynchburg, vice-president, and Dr. E. U. Wallerstein, Richmond, secretary-treasurer.

Dr. Ross Skillern, of Philadelphia, and Dr. Harry Friedenwald, of Baltimore, have been invited to read papers. A symposium on tonsillectomy and a number of papers and reports of cases will also be on the program.

Pageant to be Given to Aid in Establishing Chair of Nursing at U. Va.

On "Florence Nightingale Day," May the 12th, there will be held pageants in the various cities and towns of Virginia, by the Foundation Fund Committee of the Graduate Nurses' Association of Virginia. Proceeds from these pageants will go toward the fund of $50,000 which this Association has pledged itself to raise for the endowment of a chair of nursing at the University of Virginia. The establishment of such a chair at our State University will give to young women an opportunity to take special graduate work in the South to fit them for the many positions ever opening in this section.

Health Conditions Improving in Austria.

Dr. Mary Griscom, Philadelphia, who has spent the last nine months in relief work for the American Friends Service Committee in Austria, has just returned to America. She had charge of the anti-tuberculosis work for the Service Committee in accordance with a program supported by that organization and the Austrian Department of Health in a fight against the menacing plague which threatened the lives of tens of thousands of their children.

With the health of her child population sapped by years of undernourishment during

the war, Austria was unable to check the invasion of tuberculosis. Very young children are infected with the disease and the government has not been able to provide treatment.

Dr. Griscom was associated with Dr. von Pirquet, the famous child specialist in Vienna. Teachers are trained in anti-tuberculosis and child care methods in Dr. von Pirquet's clinic, then are sent out into the remote districts of the provinces to give instruction in the homes and schools. Dr. Griscom reports that the Austrian Government is fast regaining her ability to cope with her gigantic health problems. The Friends Service has been able to save the lives and health of hundreds of children by making it possible for them to have medical attention and suitable food.

Dr. H. U. Stephenson,

Richmond, Va., by invitation delivered an address before the Conference Board of Physicians in Industry, at its tenth anniversary meeting at Hotel Astor, New York City, April 4 and 5.

Dr. A. D. Ownbey,

Newport News, Va., left the 4th of April for Philadelphia, to which place he went to take a post-graduate course in operative surgery and surgical anatomy at the University of Pennsylvania. He does not expect to return to Newport News until in June of this year.

Dr. H. M. Miles

Has returned to his home in Norton, Va., after doing post-graduate work in New York City in eye, ear, nose and throat work.

Dr. Karl Blackwell,

Richmond, was recently called to Lynchburg by the death of his mother, Mrs. John D. Blackwell, at Randolph-Macon Woman's College in that place.

Provisional Birth and Mortality Figures,

For the first nine months of 1923, indicate slightly lower birth rates and slightly higher death rates than for the corresponding nine months in 1922. For the states compared, North Carolina showed the highest and Montana the lowest birth rate, for this period, and Maryland the highest adjusted and Montana the lowest adjusted death rate.

Winchester Hospital Board Reorganized.

At a meeting held the middle of March, the board of directors of Winchester (Va.) Memorial Hospital was reorganized and greatly enlarged. It now includes about seventy-five business and professional men representing the city of Winchester, and the counties of Frederick, Clark, Warren, Rappahannock, and Shenandoah of Virginia, and Hardy and Hampshire of West Virginia. The newly elected officers are: President, Dr. Hunter H. McGuire; vice-president, Mr. C. W. Trenary; and secretary-treasurer, Dr. J. E. Harris. The executive committee appointed by the board to take active management of the hospital is composed of Drs. W. P. McGuire, P. W. Boyd. E. C. Stuart, B. B. Dutton, Mr. H. F. Byrd, Mr. Shirley Carter, Mr. H. B. McCormac.

While no plans have been formulated at this time, it is generally expected that a new 100-bed hospital and nurses' home will shortly be built on a new location. To accomplish this, it is likely that a campaign will be undertaken in the near future to raise two hundred thousand dollars for the purposes indicated.

The Samuel D. Gross Prize of $1,500.

Drs. William J. Taylor, John H. Jopson, and Edward B. Hodge, trustees, announce that the conditions annexed by the testator are that the prize "shall be awarded every five years to the writer of the best original essay, not exceeding one hundred and fifty printed pages, octavo, in length, illustrative of some subject in Surgical Pathology or Surgical Practice, founded upon original investigations, the candidates for the prize to be American citizens."

It is expressly stipulated that the competitor who receives the prize shall publish his essay in book form, and that he shall deposit one copy of the work in the Samuel D .Gross Library of the Philadelphia Academy of Surgery, and that on the title page it shall be stated that to the essay was awarded the Samuel D. Gross Prize of the Philadelphia Academy of Surgery.

The essays, which must be written by a single author in the English language, should be sent to the "Trustees of the Samuel D. Gross Prize of the Philadelphia Academy of Surgery, care of the College of Physicians, 19 S. 22d St., Philadelphia," on or before January 1, 1925.

Each essay must be typewritten, distinguished by a motto, and accompanied by a sealed envelope bearing the same motto, containing the name and address of the writer. No envelope will be opened except that which accompanies the successful essay.

The Committee will return the unsuccessful essays if reclaimed by their respective writers, or their agents, within one year.

The Committee reserves the right to make no award if the essays submitted are not considered worthy of the prize.

Dr. T. S. Hening,

Jefferson, Va., has been appointed judge of the Juvenile and Domestic Relations Court of Powhatan, Va.

Dr. Francis Lee Thurman,

Recently of Glasgow, Va., announces his removal to Buena Vista, Va., where he is located for the practice of medicine.

Dr. H. D. Ribble,

After spending the winter months at Mt. Hope, W. Va., expects to return to his home at Blacksburg, Va., the first of May.

Dr. William H. Parker

Was re-elected president of the Business Men's Association of the East End, Richmond, Va., at its annual meeting held last month.

Dr. F. P. Fletcher and Dr. R. S. Faris were elected members of the Board of Directors.

On Board of New Bedford Bank.

Drs. M. P. Rucker and E. L. Johnson, both of Bedford, Va., have been elected to the board of directors of the Bedford Trust and Savings Bank, which is being organized in that city.

Dr. and Mrs. H. A. Tabb,

Of Gloucester, Va., were recent visitors in Richmond.

Dr. W. W. Chaffin,

President of the Medical Society of Virginia, returned to his home in Pulaski, the latter part of March, after a business trip to Philadelphia.

Dr. L. O. Vaughan

Has returned to his home in Waverly, Va., much improved, after being under treatment at a Richmond hospital.

Dr. James K. Hall,

Of Richmond, has been appointed by the Governor to be a member of the special board of directors of the Central State Hospital, Petersburg, from March 27, 1923, for a term of six years ending March 1, 1929.

Dr. and Mrs. H. S. Daniel,

Louisa, Va., were recent visitors in Richmond.

Dr. S. E. Hughes,

Danville, Va., who has been ill for some time, is reported slightly better at this time.

Dr. John A. Tyree,

Who has been quite sick at his home in Danville, Va., is much improved.

Dr. J. Blair Spencer,

Of Philadelphia, formerly of Williamsburg, Va., has recently been on a visit to Gloucester, Va., where he has leased "Edgeware." It is understood that he contemplates purchasing this place.

Dr. Edwin J. Nixon,

Petersburg, Va., was recently called to North Carolina on account of the illness of his brother.

Dr. and Mrs. Thomas W. Murrell,

Richmond, have returned home after a visit to St. Augustine and other places of interest in Florida.

Among Directors for Farmville Hotel.

Drs. R. L. Hudgins, J. Weldon Smith and Thos. G. Hardy, all of Farmville, Va., have been elected directors of the Farmville Hotel Corporation. The site has been selected and a new hotel will be erected there shortly.

Meetings at Atlantic City.

The American Climatological and Clinical Association will meet at The Ambassador, Atlantic City, N. J., for its annual convention May 1-2-3. One hundred and fifty doctors are expected to attend.

The American Urological Association has also completed arrangements to return to the Ambassador where it met two years ago. This association will spend two days at the shore, June 3rd and 4th.

Northampton-Accomac Memorial Hospital.

Charter has been issued by the State Corporation Commission to this hospital, now in process of construction at Nassawadox, Northampton County, Va., as a memorial to the men from the Eastern Shore of Virginia who served in the World War. The structure will cost about $85,000 and will serve a population of about 65,000 people, the hospital at Salisbury, Md., being the only other institution of its kind on the Eastern Shore. It is expected that this hospital will be completed in a few months.

The Southside Virginia Medical Association,

Of which Dr. George H. Reese, Petersburg, is president, and Dr. R. L. Raiford, Sedley, secretary, held its regular quarterly meeting in Suffolk, March 11th, with a good attendance. The program included a discussion of papers of unusual interest. Upon completion of the scientific program, the visiting doctors were entertained at a dinner given by the Suffolk faculty.

The next meeting is to be held at Victoria,

Va., on June the 10th, and Dr. Herbert C. Jones, of Petersburg, was appointed leader of the general discussion for that meeting.

Physiotherapy Aide Wanted.

The United States Civil Service Commission announces that examinations will be held throughout the country on May 7 and June 18, to secure eligibles from which to fill vacancies as physiotherapy aide and physiotherapy pupil aide in the United States Public Health Service. Full information may be secured from the above named Commission, at Washington, D. C.

Dr. Victor F. Cullen,

Medical superintendent of Maryland Tuberculosis Sanatorium, at State Sanatorium, Md., has been awarded the Knighthood of St. George, by Pope Pius XI. Dr. Cullen is a graduate of Johns Hopkins University Medical Department in the class of 1906.

Dr. George W. Skaggs,

Of the class of '08, Medical College of Virginia, announces that he has moved from Whittaker, W. Va., to Beards Fork, W. Va.

Attend American Legion Convention.

Dr. W. B. Peters, Appalachia, Va., Ninth District ex-committeeman, and Dr. Charles E. Dyer. Jewell Ridge, Va., department vice-commander of the American Legion, attended the District Convention recently held in Bristol, Va. Dr. Dyer also attended an executive meeting of the Legion in Richmond, last month.

The Medical Association of the Valley of Virginia

Will hold its regular semi-annual meeting on May 29, 1924, at Harrisonburg, Va., the first session convening at 11 A. M. Dr. J. M. Emmett, Clifton Forge, is president, and Dr. Alex. F. Robertson, Jr., Staunton, secretary.

Dr. P. G. Hamlin

Is again connected with the staff of Eastern State Hospital, Williamsburg, Va. He returned recently after having spent ten months in the laboratory of the Protestant Episcopal Hospital in Philadelphia.

Dr. John W. Shawver,

Formerly with St. Luke's Hospital, Bluefield, W. Va., is now associated with Dr. W. R. Williams, at Richlands, Va., in private practice and at the Mattie Williams Hospital in that place. Dr. Shawver graduated from the Medical College of Virginia in 1920.

The American Gynecological Society

Is to hold its forty-ninth annual meeting at Hot Springs, Va., May 15-17, 1924, under the presidency of Dr. Barton Cooke Hirst, of Philadelphia. Dr. Arthur H. Curtis, Chicago, is secretary of this Society.

Clinic Tour to Canada, British Isles and Paris in 1925.

Inter-State Post-Graduate Clinic Tour to Canada, British Isles, and Paris in 1925 is now being arranged under the supervision of the Managing-Director's office of the Tri-State District Medical Association of the middle-west states. The time for leaving will be about the middle of May of next year.

The tour will consume, approximately, two months' time and the total cost from Chicago and back to Chicago again will be less than $1,000.00. This will include all clinic arrangements and admissions and all traveling expenses, except meals on Pullmans in America and tips on the ocean steamer. First-class hotels will be used everywhere and the ocean passage will be on the largest and finest of the new one cabin ships.

Clinics are being arranged in Dublin, Belfast, Liverpool, Manchester, Leeds, Edinburgh, Glasgow, Newcastle, London and Paris and other points of clinical interest, and these will be conducted by the leading clinicians of these cities. The opportunity will be given, subsequently, to visit the clinic centers in other parts of Europe.

This tour is open to members of the profession who are in good standing in their state or provincial societies and their families and friends. Sight-seeing programs will be arranged without extra cost for practically every day abroad, including the most scenic part of the countries visited.

On account of the great demand for reservations, applications should be made as early as possible to Dr. William B. Peck, Managing-Director, Freeport, Illinois. Preference in the assignment of hotel and steamship accommodations will follow in the order in which the applications are received.

Married.

Dr. Thomas G. Pretlow and Mrs. Esther Berkeley Bentley, of Chester, Va., March 26, at Chester, Va.

Dr. William Bailey Sims, Jr., Washington, D. C., and Miss Marie Lorton, in Richmond, Va., March 22. Dr. Sims is a graduate of the

University of Virginia Medical School, in the class of 1919.

Books for Health.

The National Health Council, in co-operation with the National Association of Book Publishers, designated February as a "Health Book" month. Commenting on this fact, Surgeon General Cumming, of the Public Health Service, said that not only was the reading of such books at any time to be commended, but especially in February, as it is usually in this month that there is the greatest amount of illness and the greatest number of deaths, though March is a close second. The latest complete reports from the United States Census' report are for the year 1920, which show that nearly fifteen per cent of the total deaths for the year occur in the month of February.

Dr. and Mrs. O. T. Amory,

Of Newport News, Va., have been spending some time in Bermuda Islands.

Dr J. Hampton Hare,

Newland, Va., was a recent visitor to Richmond.

Plaut Research Fund.

Dr. Edward Plaut, president of Lehn & Fink, Inc., New York, has presented the Harriman Research Laboratory with the sum of $3,000 for the year 1924, to be known as the "Plaut Research Fund for Studies in Internal Medicine." This fund is to aid in the investigation of the effects of certain therapeutic agents, especially the endocrine glands. Dr. K. G. Falk has been placed in charge of this work by Dr. W. G. Lyle, director of the Harriman Research Laboratory.

American Medical Association.

Official call has been issued for the seventy-fifth annual session of the Association, to be held in Chicago, Ill., June 9-13, 1924, inclusive. The House of Delegates will convene on Monday, the 9th. The scientific assembly will open with the general meeting on Tuesday, the 10th, at 8:30 P. M. The various sections of the scientific assembly will meet Wednesday, June 11th, at 9 A. M. and at 2 P. M., and subsequently according to their respective programs. Dr. Ray Lyman Wilbur, of Stanford University, Calif., is president, and Dr. Olin West, Chicago, secretary.

Dr. E. L. Sutherland,

After serving as director of the Suffolk-Nansemond Health Unit for a short time, resigned March 1st, and has opened offices at 104 East Main Street, Charlottesville, Va. He will limit his work to diseases of the eye, ear, nose and throat.

Virginia Baptist Hospital.

Trustees of the Virginia Baptist Hospital, Lynchburg, Va., have authorized the issuance of $200,000 of bonds, proceeds of which will be used to construct at once the second unit of the hospital. It is expected the first unit will be ready for use about June the 1st.

Dr. J. F. Terrell,

Lieutenant in the medical corps of the United States Navy, who graduated from the Medical College of Virginia in the class of '18, is now connected with the medical department of the United States Naval Academy, at Annapolis, Md.

Dr. A. I. Dodson,

Richmond, by invitation presented a paper on surgery of the prostate gland, before the Danville (Va.) Academy of Medicine, on the 18th of March. This meeting was largely attended by the local doctors and many from the county.

Dr. Dexter W. Draper,

Formerly of Newport News, Va., after post-graduate work in Pennsylvania, has located at 127 East Orange St., Lancaster, Pa., and will limit his practice to diseases of children.

Dr. J. A. Hart,

Acting Assistant Surgeon in the United States Public Health Service, has been transferred from Hampton Roads Quarantine Station to Marine Hospital No. 1, Baltimore, Md.

Cancer Number.

The Canadian Practitioner, with an idea of educating the general practitioner as to the cancer situation and having him pass on necessary information to the layman, devoted its March issue entirely to the subject of "Cancer." It is of unusual interest. Every article, editorial and selection treats of some phase of the cancer problem.

The West Virginia State Medical Association

Is to hold its annual meeting in Wheeling, May 13, 14, and 15. Dr. Robert A. Ashworth, Moundsville, is president, and Dr. D. A. MacGregor, Wheeling, secretary.

Dr. D. S. Divers,

Who was located for a time in Martinsville, Va., is now practicing in Pulaski, Va.

Miss Mary D. Fairchild,

Who was formerly connected with the nursing staff of the Rockingham Memorial Hospital, at Harrisonburg, Va., announces that she was married last May to Lemuel S. Halterman, and is now living on their farm at Baker, W. Va.

Dr. Patton K. Pierce,

Who returned to Alabama upon completing his internship at the University of Virginia Hospital, is located at Eutaw, Ala., for the practice of his profession.

Decrease in Deaths from Puerperal Causes.

According to the January *Statistical Bulletin* issued by the Metropolitan Life Insurance Company, there was a gratifying decrease in mortality from puerperal conditions among their 15,000,000 industrial policyholders in 1923. The death rate for 1923 was 17.9 per 100,000 as compared with 19.0 in 1922, and 23.0 in 1920. With the big work now being done by obsetricians and health officers, it is believed these will be still further reduced.

Broadoaks Sanatorium,

At Morganton, N. C., a sanatorium for the treatment of nervous and mental patients, was destroyed by fire early in the morning of April the 3rd. Three patients lost their lives and another was fatally injured. Property loss is estimated at about $25,000.

The Physician's Plea

Is the name of a poem by R. Ruedemann, Jr., M. D., dedicated to The Dermatological Laboratories and The Abbott Laboratories. Doctors who wish this for framing may secure copies *free*, upon request to The Abbott Laboratories, 4753 Ravenswood Avenue, Chicago, Ill.

Practice for Sale.

A five thousand dollar practice in a Virginia town of three thousand people. Good roads, splendid schools and churches. No real estate. Office furniture if wanted. Must act at once. Address "H," care this journal. (Adv.)

Obituary

Dr. John Marvin Ratliff,

A popular physician of Southwest Virginia, died at his home in Richlands, Va., February 25th after a short illness with pneumonia.. He was born in Buchanan County, Virginia, on July 23, 1895. Upon completion of his academic education at Fork Union Military Academy, he studied medicine at the Medical College of Virginia, Richmond, from which he graduated in 1917. He served in the medical corps of the army in the World War and saw active service in France. In 1920, he moved to Richlands and became a member of the staff of the Mattie Williams Hospital in that place. As a result of an automobile accident, Dr. Ratliff suffered the amputation of a leg in 1922. After recovering from the shock of this, he resumed the practice of his profession. He is survived by his wife, two young sons and a large family connection.

As an evidence of the esteem in which Dr. Ratliff was held in his community, every business house in Richlands closed its doors while his funeral was in progress.

Dr. Henry Bayly Melvin,

For many years a beloved physician of Halifax County, Va., died at his home in Halifax, March 9, after a long illness. He was born in Accomac County, Va., eighty-four years ago and studied medicine at the Medical College of Virginia, from which he graduated in 1862. He served through the Civil War as a surgeon in the Confederate Army, after which he located in Halifax County, and practiced in that section for fifty-seven years. He never married but is survived by a nephew and three nieces. The interment was made in Hollywood, Richmond.

Dr. Edward Willis Finch,

Petersburg, Va., died April 3, after an illness of six weeks. He was born in Powhatan County, Virginia, 78 years ago. As a boy he entered the Confederate service in the War Between the States. He was an alumnus of the University of Virginia and the University of Maryland, graduating in medicine from the last named school in 1868. Shortly after this he went to Montana to practice, and later practiced in some of the Southern states, moving to Petersburg a little over twenty years ago. He is survived by his wife and a large family connection.

What is S. M. A.?

S. M. A. is an adaptation to breast milk which resembles breast milk both physically and chemically.

S. M. A. in addition to giving excellent nutritional results in most cases, also prevents nutritional disturbances such as rickets and spasmophilia.

S. M. A. requires no modification or change for normal infants. As the infant grows older the quantity is merely increased.

S. M. A. requires only the addition of boiled water to prepare.

(Orange juice, of course, should be given the infant fed on S. M. A., just as it is the present practice to give it to breast-fed infants).

Why was S. M. A. developed?

Because there is a real need for an adaptation to breast milk which will give satisfactory nutritional results in the great majority of cases, which includes the preventive factors, and which is, at the same time, so simple to prepare that the physician can rely on the mother to follow his directions accurately.

How is it possible to feed S. M. A. to infants from birth to twelve months of age without dilution or change?

The answer to this question sounds the keynote of the success which thousands of physicians are having with S. M. A. It is not necessary to modify S. M. A., for *the same reason that it is not necessary to modify breast milk:*—for S. M. A. resembles breast milk not only in its protein, carbohydrate and salt content, but also *in the character of the fat.* Since the very young infant can tolerate the fat, as well as the other essential constituents in S. M. A., it is possible to give this food in *the same strength*, to normal infants *from birth to twelve months of age.* As the infant grows older, therefore, it is only necessary to increase the *amount* of S. M. A.

Samples and literature to physicians on request.

S. M. A. is to be used only under the direction of a physician. For sale by druggists.

Formula by permission of The Babies' Dispensary and Hospital of Cleveland.

THE LABORATORY PRODUCTS CO.

Cleveland, Ohio.

A NEW SPRING "DUNLAP"

Starts the season off right.

¶Here in all the new blocks and shades including the Derby—$7.

Hanan Shoes

O. N. Berry Co.
ESTABLISHED 1879
RICHMOND, VA.

Main at Eleventh

Capital $1,000,000 Surplus Earned $1,000,000

ESTABLISHED 1892

To act as Executor, Guardian and Trustee
$25,000,000
of investments held in Trust

Confidential Interviews Invited.

Say, Doctor---

you can talk to us entirely confidentially about your affairs. Come by and let us answer your questions and advise you about your will.

This bank has friends all over Virginia, many of whom have already seen us about their wills.

Write or phone for a special engagement with Mr. G. Jeter Jones, Vice-President.

MERCHANTS NATIONAL BANK
11th & Main Streets. Richmond, Va.

"Safest For Trusts"

Virginia Medical Monthly

OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

Fifty-fifth Annual Meeting, Staunton, October 14-17, 1924.

Vol. 51, No. 2.
WHOLE No. 863.

RICHMOND, VA., MAY, 1924

$2.00 A YEAR
20 CENTS A COPY

CONTENTS.

ORIGINAL COMMUNICATIONS:

Banti's Disease: Report of a Case. Alexander G. Brown, Jr., A. B., M. D., Richmond, Va. ---- 67

Prostatectomy: A Report of 25 Operations With One Death. J. Shelton Horsley, M. D., and Austin I. Dodson, M. D., Richmond, Va. ---- 71

The Minimum Standard of Care that Should be Accorded the Puerperal Woman. Burnley Lankford, M. D., Norfolk, Va. ---- 76

Gastro-Enterostomy in Retrospect. J. Kennedy Corss, A. M., M. D., F. A. C. S., Newport News, Va. ---- 81

The Pneumonias, Their Etiology and Differentiation. Charles R. Grandy, M. D., Norfolk, Va. ---- 83

Diverticulitis of the Colon. Carrington Williams, M. D., Richmond, Va. ---- 86

Torsion of an Appendix Epiploica Simulating an Attack of Acute Appendicitis. Frank Helvestine, Jr., M. D., University, Va. ---- 88

Insulin in Country Practice. James C. Doughty, M. D., Onancock, Va. ---- 92

Spontaneous Pyopneumothorax Complicating a Case of Lobar Pneumonia. Basil B. Jones, M. D., Richmond, Virginia ---- 98

Traumatic Displacements of the Uterus. J. M. Ropp, M. D., Roanoke, Va. ---- 101

Chronic Appendicitis as a Cause of Acidosis in Children. Stuart McGuire, M. D., Richmond, Va. ---- 105

Diagnostics of Some Acute Abdominal Conditions. Cora Z. Corpening, M. D., Suffolk, Va. ---- 108

Some Stomach Generalizing. George A. Caton, M. D., Newbern, N. C. ---- 111

An Analysis of One Hundred Consecutive Abdominal Operations. George H. Reese, M. A., M. D., Petersburg, Va. ---- 112

The Diagnosis of Cancer from the Standpoint of the General Practitioner. C. P. Obenschain, M. D., New Hope, Va. ---- 115

Suggestions in Palpating the Abdomen. W. R. Aylett, M. D., Newport News, Va. ---- 117

ANALYSES, SELECTIONS, ETC. ---- 117

PROCEEDINGS OF SOCIETIES ---- 119

THE TRUTH ABOUT MEDICINE ---- 120

BOOK ANNOUNCEMENTS ---- 123

EDITORIAL ---- 124

NEWS NOTES ---- 126

OBITUARY ---- 131

INDEX OF ADVERTISERS—Advertising Page 5.

CALCREOSE

"*CREOSOTE seems to be of value in cases of chronic fibroid disease with copious expectoration, in patients with a secondary infection or with chronic bronchitis, and in some early cases with dyspepsia and intestinal fermentation.*" R. A. Young: Lancet 1:484 (March 8), 1924.

CALCREOSE (calcium creosotate) is a mixture containing in loose chemical combination approximately equal weights of creosote and lime. It differs from creosote in that it apparently does not have any untoward effect on the stomach.

POWDER—TABLETS—SOLUTION

Samples of Tablets on request

THE MALTBIE CHEMICAL COMPANY,

Newark, New Jersey

BETTER BABIES

The most important factor in the development of a Nation is

THE BIRTH AND REARING OF CHILDREN

No food is more important during the first year of life than BREAST MILK.

The best substitute for Breast Milk is Fresh Modified Cow's Milk.

Every baby, whether bottle-fed or breast-fed, should be under the supervision of a physician.

Many physicians have learned

The value of Mead's Dextri-Maltose in the Modification of Cow's Milk.

The value of Mead's Casec in Fermentative Diarrheas.

The value of Mead's Cod Liver Oil to protect the infant from rickets.

The value of MEAD'S POLICY.

THE MEAD JOHNSON POLICY

Mead's Infant Diet Materials are advertised only to physicians. No feeding directions accompany trade packages. Information in regard to feeding is supplied to the mother by written instructions from her doctor, who changes the feedings from time to time to meet the nutritional requirements of the growing infant. Literature furnished only to physicians.

Mead Johnson & Company, Evansville, Indiana.

Virginia Medical Monthly

Official Organ of the Medical Society of Virginia

Vol. 51, No. 2.
WHOLE No. 863.

RICHMOND, VA., MAY, 1924

20 CENTS A COPY
$2.00 A YEAR

Original Communications

BANTI'S DISEASE: REPORT OF A CASE.*

By ALEXANDER G. BROWN, Jr., A. B., M. D., Richmond, Va.

Splenic anemia, primary splenomegaly with anemia, or Banti's disease, is a splenic disease with a rather recent clinical history. Grisenger in 1866, H. C. Wood, in 1871, and Banti in 1883, were the chief clinicians to describe this entity which we now call Splenic Anemia. Banti's name is more definitely associated with the disease because of his more extensive study and description of it.

Splenomegaly—Anatomically the spleen is greatly enlarged. The enlargement is uniform, smooth, and painless, except under bimanual pressure and manipulation. The size of the splenic mass resembles that of the leukemic forms of spleen reaching, it may be, to the navel, but is usually, freely movable. It is commonly agreed that the enlargement occurring in the spleen is one resulting from thrombophlebitis. This occurs as a result of a profound toxic agency or chronic infection which usually concomitantly produces a portal thrombophlebitis and portal cirrhosis. The association of Banti's disease and Laennec's (portal) cirrhosis is usual.

The Liver—Splenic anemia can not be considered alone. It is co-ordinate with portal thrombophlebitis and probably the same chronic infection which the detoxicating function of the liver is called upon to exercise, at the same time sets up inflammatory changes and clot-mass in the venous channels of both the liver and the spleen. To repeat, portal cirrhosis and Banti's disease are closely associated all through the literature, for it is believed that the toxic material entering the portal system over considerable time effects like changes of fibrosis and thrombophlebitis.

Anemia—The blood system is markedly affected. During the clinical evolution of the disease, long after the primary infection, patients show definite signs of anemia. Although the anemic phenomenon may assert itself in the likeness of an attack developing suddenly after a hemorrhage, usually a close observer notes the anemic condition gradually progressing; the insidious progress of the anemia may be so insignificant that it requires some outstanding symptom outside of the blood system, like dyspnea or swelling of ankles, to bring the patient to the physician. The blood picture in splenic anemia is one of leukopenia, 5,000 to 3,000 whites or less, with a red cell count of two million or less, depending upon the occurrence of hemorrhage.

Hemmorhage—Bleeding by haematemesis is a usual and spectacular symptom of Banti's disease. This may be the leading symptom directing attention to the malady. Hemorrhage in the patient, the subject of this report, was the first striking symptom and it occurred while the patient was traveling abroad, apparently in good health. The evidence of blood in the vomitus may be small, but careful observation of stools may disclose large amounts of blood, associated with increasing evidence of anemia.

Ascites—As Osler writes, ascites usually is a terminal event and is usually due to the enlargement of the spleen, and to a secondary cirrhosis of the liver associated with hydremia and anemia. In my case ascites began to develop in about three weeks after the first sign of hemorrhage. Ascites became an obtrusive and persistent symptom. The ascites developed to tremendous proportions and persisted from July, 1921 to May, 1922. There was at no time, however, general anasarca. The heart was displaced and dilated. There was no hydrops of pleurae or pericardium.

Case Report

Miss ———, white, female, age 55, unmarried. Patient's illness began April 30, 1921, while in Paris, continuing in Carlsbad from May 11 to July 13, 1921; arriving in Rich-

*Read by title at the fifty-fourth annual meeting of the Medical Society of Virginia, in Roanoke, October 16-19, 1923.

mond July 25, 1921, continued toward recovery until discharged, June, 1922.

The following facts were reported to me by her Carlsbad physicians covering the period, April 30th to July 13th: Patient became ill in Paris with what she thought was "acute indigestion;" this attack was characterized by nausea, vomiting, haematemesis, fever. Patient arrived in Carlsbad May 11th, with a temperature of 102° F.; pulse 116 per minute; marked anemia, coated tongue. Physical examination disclosed an enlarged heart with low systolic murmur along the base, a large round abdomen, distended with gas, but without evidence of tenderness or soreness, without evidence of tumor or mass, although the liver and spleen appeared enlarged. There was no ascites or anarsaca.

The stools were frequent and were black; the urine was scanty and highly colored, showing a trace of albumin, a distinct trace of sugar, an increase of indican, some urobilin, some hyalin cylinders, but no blood.

By May 15th, the stools were free of blood; distended veins on abdominal wall appeared to be improved, the abdomen was smaller and the liver and spleen less enlarged, although not normal. Throughout this period there was a daily fever and the diagnosis was suggestive of typhoid fever.

On June 17th, about seven weeks after the initial attack and a fortnight after the febrile period, at a time when the patient was thought to be convalescing, physical examination disclosed an increasing ascites and a large palpable tumor over the left hypochondrium. From this time the patient's condition grew steadily worse; abdominal dropsy grew greater, dyspnea appeared, cardiac embarrassment increased.

On July 14th, the patient was met by me in Paris, she having been brought over from Carlsbad in a special car. Inspection revealed the evidence of dyspnea, the excessive abdominal dropsy, the pallor, the distressed and alarmed expression, the rapid, irregular venous pulse, and the cardiac embarrassment.

On July 26, 1921, the patient arrived in Richmond. Examination showed body weight 125 pounds, marked anemia, the heart enlarged, dilated, with systolic murmur along the base, irregularity of systoles, venous pulse, low diastolic and systolic blood pressure (50-90). The lungs were negative, except for subcrepitant rales at bases of both lungs. The abdomen was greatly distended, having a girth of 46 inches. The right lobe of the liver was not enlarged but the left lobe was enlarged and manifestly tender. There was an obvious excessive accumulation of dropsical fluid in the peritoneal cavity. The barrel-shape belly, the fluctuation, the flatness on percussion, the glistening, shining pale skin stretched tensely, were signs of excessive ascites. There was in the midst of the fluctuating abdomen a distinct tumor-like mass, easily palpable in left hypochondrium, about 6 centimeters from a midpoint of the left costal border. The tension of the abdominal wall and the excessive ascites rather interfered with a satisfactory demarcation of the mass. This mass had been previously suspected to be cancerous, but later, as the abdominal fluid receded under treatment, the outlines of the mass conformed to those of an enlarged spleen, with a projecting cape which appeared to be afloat with a sort of "bobbing" quality as one bimanually manipulated it. There were numerous dilated veins over the lower zone of the abdomen. There was no swelling of the legs or genitalia. The blood examination disclosed hemoglobin 20 per cent, red blood cells 2,308,000, white blood cells 2,200; negative Wassermann. The urine showed specific gravity 1,005, trace of albumin, no sugar, occasional pus and blood cell, and an occasional cast. Feces showed no blood, gross or occult.

X-ray examination by Dr. A. L. Gray, of Richmond:

Chest: Films made front and back show thorax slightly retracted on the left, otherwise normal in contour.

Diaphragm on the right one inch higher than on the left, surface smooth except for slight pleural adhesions on the right side. Some inflammatory deposit is seen to the right of the heart along the descending bronchial branches. Both hila contain calcified lymph nodes. Interlobar pleura is visible between the upper and middle lobes on the right.

Heart shadow is drawn or displaced slightly toward the left side.

Adominal and Gastro-Intestinal Examination: Plates of abdomen before the administration of barium meal show abdomen bulging toward the right side between the ribs and iliac crest. Abdominal viscera are partly obscured by the presence of fluid. A large oval mass resembling a greatly magnified kidney is seen in the upper left quadrant. This shadow

overlies a second shadow which projects below it. The outline of the right kidney is not visible.

After barium meal a plate made in the dorsal position shows the cardiac end of the stomach well outlined and presenting no pathological irregularity. It appears to be pushed slightly toward the right side.

Prone plates show the stomach of modified cow's horn type. There is no constant filling defect present. Pyloric end does not fill smoothly, which is probably due to retained food. Pylorus opens, duodenal bulb fills well, is approximately normal in shape, presents a notch at the upper part of its base, probably due to folds of mucous membrane (valvulae conniventes). The course of the duodenum is to the right and downward forming a short loop.

Six-Hour Examination: Stomach empty, meal has reached sigmoid flexure. No abnormal accumulation is seen in small intestine and what appears to be a faint outline of an appendix is visible. The course of the colon is outlined by irregular masses. The splenic flexure is greatly depressed, being on a somewhat lower level than the hepatic flexure.

Twenty-four-Hour Examination: Barium is now chiefly in the lower sigmoid and rectum. Scattered masses outline the course of the colon, which is similar to that seen in the six-hour plate.

Conclusion: There is no abnormality in the chest except what may be accounted for by a previous pleurisy. There is no evidence of organic, deforming or obstructing lesion of the gastro-intestinal tract.

Patient has a tumor outside the alimentary tract either springing from the kidney, spleen, or other structure in the upper left quadrant.

The diagnosis was made of Banti's disease with portal cirrhosis.

The patient's condition continued extremely grave. Surgical operation was considered: although advised, was not concurred in as the probabilities of relief from this source appeared hopeless. So it was determined to adopt a method of medical treatment consisting of a daily "medical trocar" and the use of a X-ray treatment of the spleen, with careful diet and haematinic treatment. This plan was followed with more or less persistency through the summer, fall and winter. The abdominal dropsy was the chief obstacle because of its mechanical effects upon the respiration and cardiac action. By periodic administration of saline cathartics, the loss of fluid from the bowels, with variation, was greater than the accumulation. This may be seen in the accompanying memorandum of the varying weights of the patient from July 27 to September 24, 1921.

Date	Intake ounces	Output ounces	Loss ounces	Gain ounces	Body Weight pounds
July					
27	51	74	21		125
28	33	65	32		
29					
30	43	55	12		
31	38	48	13		
Aug.					
1	41	55	14		
2	51	47		4	
3	43	68	25		
4	41	68	27		
5	34	53	19		
6	35	44	9		
7	39	43	6		
8	36	39	3		114
9	29	57	22		113 ¼
10	38	35		3	113 ¼
11	49	58	9		112 ½
12	38	34		4	
13	29	39	10		113 3/16
14	35	61	26		111 15/16
15	28	39	11		112 3/16
16	35	48	13		112 ⅛
17	39	52	13		111 3/16
18	34	30		4	112 ¼
19	33	45	12		112 ¼
20	52	46		6	112 ¼
21	53	53			112 ½
22	61	66	5		111 ¼
23	65	46		19	112 ½
24	56	48		8	112 ½
25	55	53		2	112 ¼
26	58	46		12	112 ¾
27	51	48		3	112 ¾
28	51	58	7		112 ¼
29	61	46		15	112 ¼
30	41	45		4	112 ¼
31	64	42		22	112 ¾
Sept.					
1	49	30		19	112 ¾
2	60	60			112
3	53	41		12	112 ⅛
4	55	49		6	112 9/16
5	39	48	9		111 5/16
6	51	44		6	111 13/16
7	55	64	9		111
8	54	45		9	111 3/16
9	54	47		7	111 ¼
10	45	51	6		111 ¼
11	60	54		6	112
12	54	55	1		110 7/16
13	61	45		16	112 15/16
14	51	41		10	111 15/16
15	51	42		9	112 3/16
16	50	50			113
17	51	62	11		111 ½
18	50	77	27		110 ⅝
19	54	52		2	109 ⅝
20	58	55		3	109 ⅛
21	60	42		18	111 ⅛
22	51	58	7		110
23	56	54		2	110 ¾
24	49	36		17	112 ⅛

After September, it became quite apparent that the patient was well in hand as regards the tide of dropsical fluid. It was manifested also that the X-ray treatment of the spleen was assisting in a more ready control of the ascites.

The Blood: Another serious handicap in the case was the low blood values of the patient. When she was taken in hand, July 26th, the hemoglobin was 20 per cent, the red blood cells were 2,308,000 and the white cells were 2,200. Food, fresh air, and haematinics were relied upon to build up the blood system. The X-ray action on the leucocytes added to our troubles. The following memorandum of blood examinations made from time to time, usually just after the patient had had an X-ray treatment, shows the gradual improvement in this system.

Date	Hem.	Whites	Reds	Polys.	Small Lymph	Large Lymph	Eosin.	Bas.
July 26	20%	2 200	2 308 000					
August 20	20%	1 900	2 644 000	67 %	28 %	5 %	Poikilocytes	
August 29	30%	2 400	3 136 000	77 %	20 %	3 %	Microcytes	
September 9	32%	1 600	3 448 000					
September 16	33%	1 800	3 280 000	76 %	20 %	3 %	1 %	
October 1	37%	1 400	4 072 000	63 %	30 %	6 %		1%
" 14	45%	1 200	4 160 000	64 %	25 %	8 %	1 %	2%
" 17	44%	1 500	4 104 000	74 %	19 %	4 %	3 %	
November 3	50%	1 400	5 240 000	63 %	19 %	3 %	15 %	
" 28	60%	1 400	5 216 000	74 %	15 %	3 %	8 %	
December 19	60%	1 400	4 872 000	74 %	15 %	3 %	8 %	
1922								
January 9	63%	1 400	4 640 000	65 %	22 %	3 %	10 %	
" 30	64%	2 200	4 772 000	70 %	16 %	6 %	8 %	
February 20	75%	1 800	4 048 000	78 %	13 %	3 %	6 %	
March 13	79%	800	4 592 000	50 %	21 %	8 %	18 %	2%
April 3	68%	1 800	5 376 000	64.8%	12.8%	2.4%	20 %	
" 26	77%	1 500	4 232 000	62 %	14 %		24 %	
May 13	70%	1 500	4 992 000	71.2%	16.8%	1.6%	10.4%	
June 5	77%	1 200	4 224 000	60 %	28 %	2.4%	9.6%	
" 20	77%	1 500	4 380 000					
July 12	78%	2 160	4 706 000					
August 12	85%	3 008	4 606 000					
October 24	58%	1 500	4 112 000	70 %	17%	8 %	5 %	
December 5	57%	2 200	3 368 000	60 %	28%	8.5%	3 %	
1923								
March 29	65%	2 100	4 240 000	63 %	30%	3.5%	3.5%	
June 21	62%	1 600	4 344 000	59 %	35%	2 %	4 %	

The X-ray treatments were conducted by Dr. A. L. Gray of Richmond. The patient received them at intervals of three weeks. The spleen-mass was bombarded with the X-ray with evident effect. Following the days of treatment, the ascites appeared to be more easily controlled. This course of X-ray therapy was continued through the fall and winter and spring following. The patient in the late spring months was manifestly better clinically; the ascites disappeared, the tumor mass diminished, the blood values increased, the cardiac strength increased, the physical well-being improved. The patient in the middle of June, 1922, left her Richmond home for her summer home in Maine. During the summer, 1922, and winter following she has appeared to be in good physical condition with a weight of 135 lbs., and was freed from symptoms of Banti's disease, excepting leukopenia and slight splenic enlargement.

In connection with the foregoing, it may be of interest to note here the surgical results of splenectomy, reported by W. J. Mayo, *J. A. M. A.*, July 2, 1921, page, 35: Splenectomy was performed in six cases of primary biliary cirrhosis with greatly enlarged spleens. Five of these patients recovered from the operation; three were alive at two years; two were alive at three years; and one was alive at five years after splenectomy. Up to January 1, 1921, 249 spleens had been removed at the Mayo Clinic for all causes with a mortality of ten plus per cent. Seventy-one of these were splenic anemia, with nine deaths.

Stuart Circle Hospital.

PROSTATECTOMY: A REPORT OF 25 OPERATIONS WITH ONE DEATH.*

By J. SHELTON HORSLEY, M. D.,
and
AUSTIN I. DODSON, M. D.,
Richmond, Va.

Since December 1, 1919, Dr. A. I. Dodson has been urologist to St. Elizabeth's Hospital. From that date to the present, we have done twenty-four prostatectomies at St. Elizabeth's Hospital, and one at the Retreat for the Sick. The prostatectomy has been done by Dr. Horsley. Dr. Dodson has had charge of all of the urological features except the operation of removing the prostate. Dr. Dodson has also done the transfusions of blood, when this was indicated.

These twenty-five prostatectomies were done on twenty-four patients. One patient, whose prostatic enlargement was marked and on whom the prostatectomy was done by the perineal route, had further bladder discomfort and a cystoscopic examination showed that some hypertrophied prostatic tissue was left and that there was a small diverticulum in the bladder. At later operation by the suprapubic route removed the remnant of the hypertrophied prostate and closed the diverticulum.

We feel that there is no type of surgery that requires more careful teamwork than major urological surgery. In operations upon the kidney it is essential to know the function of the other kidney. A nephrectomy sacrificing the only good kidney a patient has is not justifiable these days, though this was a not infrequent cause of death after nephrectomy before cystoscopic work had been perfected.

A removal of the growth of the prostate gland is an important step, but is only one of the several important steps in the treatment of prostatic hypertrophy. No matter how carefully and skilfully the operation is done, if the patient has not been properly prepared and if the after-treatment is not satisfactory, a poor result or death will occur. On the other hand a bungling operation with the loss of an unusual amount of blood may cause a fatality even though the patient may have been in good condition.

The technic of the operation should be suited to the individual case. We are doing prostatectomies now more by the perineal than by the suprapubic route. Not infrequently the enlargement of the prostate grows up into the bladder almost like a polyp, and in such cases the suprapubic operation is the proper method. In order to determine intelligently the type of operation to be done, it is necessary to know the kind of prostatic enlargement present. We investigate that either by cystoscopic examination, when this can be done without too much trauma, or else we make the preliminary suprapubic cystotomy for drainage large enough to introduce the finger and palpate the prostate. In one of these two ways we can gain a fairly accurate idea of the growth and consequently the best method of attack. That no one operation is suitable for all cases is due to variations in the nature of the growth. It is not to the best interest of the patients to require every one to submit to the same operative procedure regardless of the type of pathology he presents. Fourteen of our cases were operated upon suprapubically, and eleven by the perineal route.

The only death in this series was one of the early cases where a suprapubic operation was done. The preliminary suprapubic cystotomy for drainage was performed under local anesthesia. After nineteen days the patient's general condition seemed satisfactory, and an attempt was made to remove the prostate by merely dilating the suprapubic opening. The tissues about the pubis were fixed, but those above, being not fixed, tore. The bladder had been previously irrigated and argyrol had been instilled. After the operation had been completed, an inspection of the wound showed a small tear about one and one-half inches long in the peritoneum in the upper portion of the wound. This was sutured. The patient made a satisfactory immediate recovery, but that evening developed a high temperature with peritonitis, and died the following day. Post mortem showed a small amount of bloody fluid in the abdomen and apparently a very virulent peritonitis.

Since that time in doing a suprapubic prostatectomy subsequent to a suprapubic cystotomy for drainage, the opening is enlarged with a knife and the tissues about the pubis are dissected free, and no attempt is made to stretch the fistula with the finger.

There is no routine method of removing the prostate by the suprapubic route. The technic followed by Dr. Robert C. Bryan seems excellent. The mucosa is nicked or torn over

*Read at a meeting of the Richmond Academy of Medicine, March 11, 1924.

the most prominent intra-urethral part of the prostate and the lateral and middle lobes are loosened and enucleated. This seems better than following the Squier technic as a routine measure and certainly gives a satisfactory access. When the enlargement of the prostate bulges into the bladder and forms a kind of polyp with a pedicle, the mucosa over the pedicle is opened and the tissue around the attachment is enucleated. Frequently small adenomas will be found around the base of the pedicle. The bleeding is controlled by packing the raw surface rather firmly with strips of iodoform gauze that have been twisted into a cable. This packing is held in place by sponge-holding forceps, the handle of which protrudes from the wound of the bladder. A few silkworm gut sutures are placed in the abdominal wall. Some of them are tied; others are left loose, to be tied after removal of the packing. Sometimes sutures of catgut may be inserted into the bladder opening, if it is wide, to be tightened after the packing is removed, though this is not always practical. The handle of the sponge-holding forceps is fastened with adhesive plaster, and this in turn is connected with either a rubber band on each side or with strips of adhesive, which make gentle pressure on the forceps and so keep the packing firmly in the bed of the prostate. This method is not original, but has been used by many surgeons and it seems to us to be the simplest and probably the most effective way to control the bleeding.

There are several objections to the insertion of a rubber bag. Smooth rubber does not promote clotting of blood as gauze does. Consequently it is necessary to have much more pressure on the raw surface when using a smooth rubber bag to control the bleeding than when ganze is employed. This extra pressure cuts off the blood supply from the healing surface and may retard healing, predispose to infection, or theoretically might cause actual necrosis. Then, too, the removal of the bag necessitates pulling up through the urethra the tube, the end of which may have become contaminated, thus spreading infection to the bladder.

As for the perineal technic, we make the inverted U-shaped incision, insert a sound into the urethra, cut the central tendon and the recto-urethralis muscle, and thus expose the deep membranous urethra. At this point, instead of opening the membranous urethra, we carry the dissection back to the prostate itself, and make the incision in the margin of the urethra that impinges on the prostate, so the incision is really chiefly in the prostatic urethra. By making the incision in the prostatic urethra, injury to the external sphincter is avoided, and it leaves the patient with the external sphincter intact, which is important in regaining control of micturition. The prostate is pulled down by Young's tractor. The levator ani muscle is dissected up on each side bluntly and lateral incisions are made into the capsule, going deep into the prostatic tissue so as to expose the hypertrophied portion of the prostate thoroughly. After finding a line of clevage, the dissection is continued with the blunt end of a periosteal elevator, and finally with the finger. We endeavor to keep as close to the capsule as we can. Recently we have been enucleating the entire prostatic growth in one piece, as shown in the illustration. (Fig. 1). In many instances this can be done as well by the perineal method as by the suprapubic route. The prostatic hypertrophied mass is loosened and is pulled down on the shaft of the tractor. In this way we are assured of getting all of the hypertrophied tissue, and the objection to the perineal method of leaving the middle lobe behind is overcome.

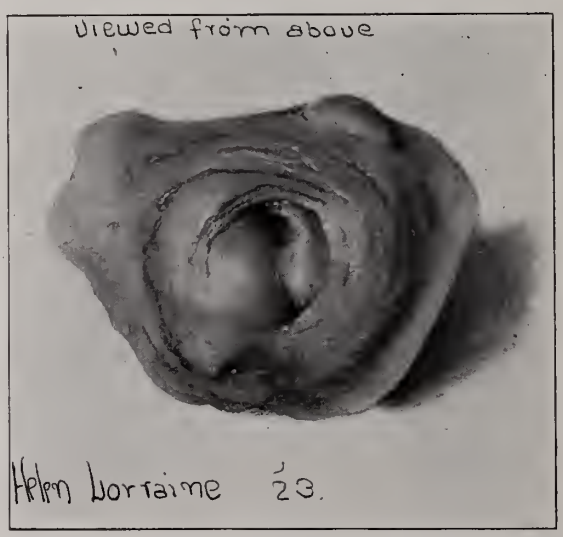


Fig. 1 (a)—Drawing of prostatic growth removed in one mass by the perineal route. This view is from the surface next to the bladder.

While the tractor is still in place, the cavity from which the hypertrophied prostate has been enucleated is packed snugly with iodoform ganze, which has been soaked in peroxide of hydrogen. The peroxide quickly disinteg-

rates the platelets of the blood and forms the material for fibrin ferment for clotting.

Fig. 1 (b)—View of the same specimen from the outer surface showing only a small amount of urethral mucosa attached to the growth. Most of it has been stripped off by the enucleation.

In our recent cases we inserted a soft rubber catheter into the urethra and then into the bladder before the packing has been completed. In this way the continuity of the urethra is established and at the same time packing can be done much more accurately than when a large tube that comes out of the perineal wound is used. It also seems to promote a quicker closure of the perineal wound, and makes a rather persistent perineal fistula less likely to occur. If the bladder is fairly clean, the suprapubic drainage wound is freshened and is closed with interrupted suture of silkworm gut. If there has been much sepsis, however, this may not be wise.

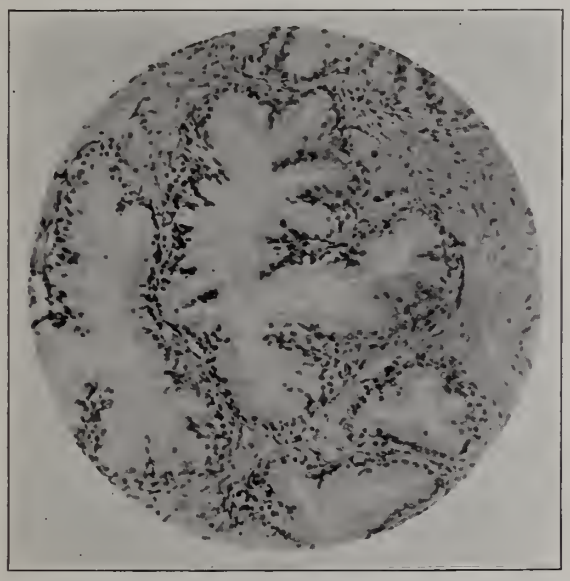


Fig. 2—Photomicrograph of adenoma of the prostate (X150). This is the type of tissue usually found in prostatic hypertrophy. This is a section from the gross specimen shown in Fig. 1. Slightly reduced.

The usual prostatic enlargement consists of an adenoma. The adenomatous areas are abundant, the cells are long, cylindrical, and the cavities of the acini are large. (Fig. 2). Frequently milky or pussy material can be expressed from the cut portion of the enlarged prostate. Occasionally, in attacks of long inflammation, the stroma is relatively very abundant, and frequently there is marked leukocytic infiltration.

Cases of carcinoma of the prostate are much more frequent than was formerly supposed. In our series of twenty-five cases, three had definite carcinoma, and there were three other cases of carcinoma too advanced for prostatectomy. The prostate was firmer than normal, which is not found in the adenomatous condition. In one of these patients, Mr. W., who was in the early series, the suprapubic method of operation was used. (Fig. 3). It was impossible to enucleate all of the involved tissue, and some of it was left behind. This was followed, however, by radium treatment, which produced marked intoxication. The patient is free from recurrence, and is in good health at

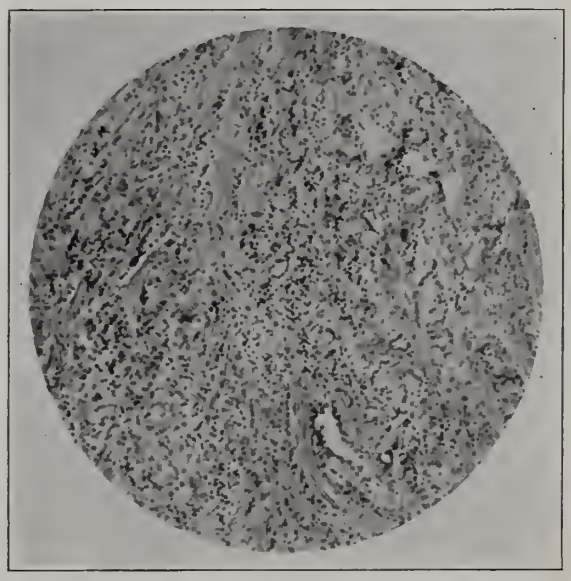


Fig. 3—Photomicrograph of cancer of the prostate showing adenocarcinomatious type of growth of moderate malignancy. (X150). Slightly reduced.

present, nearly three years after operation. In one of the cases in which a perineal prostatectomy was done, the growth was recognized by the difficulty of the enucleation to be cancer. A more radical operation than ordinarily is done was performed, and five radium needles were stuck into the bed of the prostate. The patient suffered considerable shock, was transfused, and recovered. On account of the rather extensive dissection and the use of the radium he never fully regained control of his urine. The control was fairly satisfactory when he was lying down, but apparently there was no control when he was standing up. The patient had metastases, and died thirteen months after operation from metastases in the spine and bone. The third case, operated on recently (January 23, 1924), showed definite, though not a very malignant type of cancer in one small portion of the growth.

We have had in the series one myoma of the prostate. This resembled a cut fibroid. It protruded into the prostate almost as a polyp, and was removed suprapubically. Microscopic section showed abundant smooth muscle cells with some fibrous tissue. It had the typical structure of uterine myoma. (Fig. 4). We make histologic examinations of all

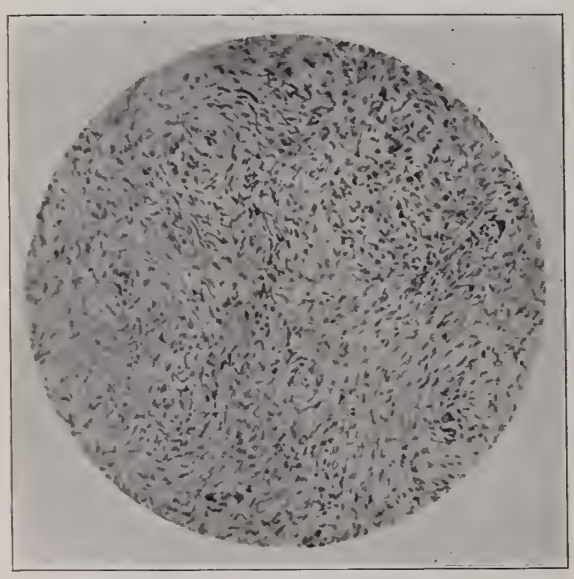


Fig. 4—Myoma of prostate. Note the histologic resemblance to myoma of uterus. (X150). Slightly reduced.

the prostates removed, and this is the only myoma that we have encountered.

In the preliminary preparation of a patient suffering with prostatic disease the first consideration is his operability. A large percentage of these old men because of ignorance of their condition or fear of surgery only present themselves when they have become completely incapacitated. Such neglect carries with it inroads on the integrity of the kidneys and heart in particular, and to a less degree on the entire organism. A few of these patients on account of marked infirmity or advanced malignancy must be satisfied with temporizing measures, while a large majority will improve with proper treatment to a sufficient extent to justify prostatectomy.

Of thirty patients with prostatic hypertrophy whom we have treated since December 1, 1919, six did not have prostatectomy—three because of advanced malignancy and three because of advanced age and infirmity. The remaining twenty-four were operated upon, with one operative death. One, operated upon for cancer of the prostate, died from metastases thirteen months after operation, and one died of senile dementia about one year after operation. Eighteen are well and have good functional results. One patient is still in the hospital, but his bladder condition is so far satisfactory. One patient has a small residual, but is greatly improved. One who has been out of the hospital six weeks, after perineal prostatectomy, has weak control over urination and has still some cystitis.

The patient who furnished our only operative mortality was 64 years of age. Our oldest patient on whom we did a prostatectomy was 79½ years of age. We operated upon him by the perineal route. Twelve cases in this series were over 70 years of age.

The first step in the treatment of the prostatic patient is bladder drainage. The type of drainage to be instituted must be decided for each case. An in-dwelling catheter is the method of choice if the patient can tolerate it. Most of our cases have suffered so much from the presence of the catheter that it has been necessary to institute drainage by suprapubic cystotomy. When this is done a soft mushroom catheter is used and the bladder sutured around it water-tight, thereby making the patient much more comfortable.

The length of time required to determine whether a patient can stand prostatectomy differs in every case. Those coming early with very little residual urine and all their organs functioning normally may be operated upon after a few days' preliminary care, while

others require weeks and months. We have had three patients to go home with suprapubic drainage under the care of their physicians for a number of months before they were considered safe operative risks, two because of circulatory unbalance, and one because of poor kidney function. It is interesting to note that constant drainage of a bladder long accustomed to retention seems to have as marked influence on the crippled circulation

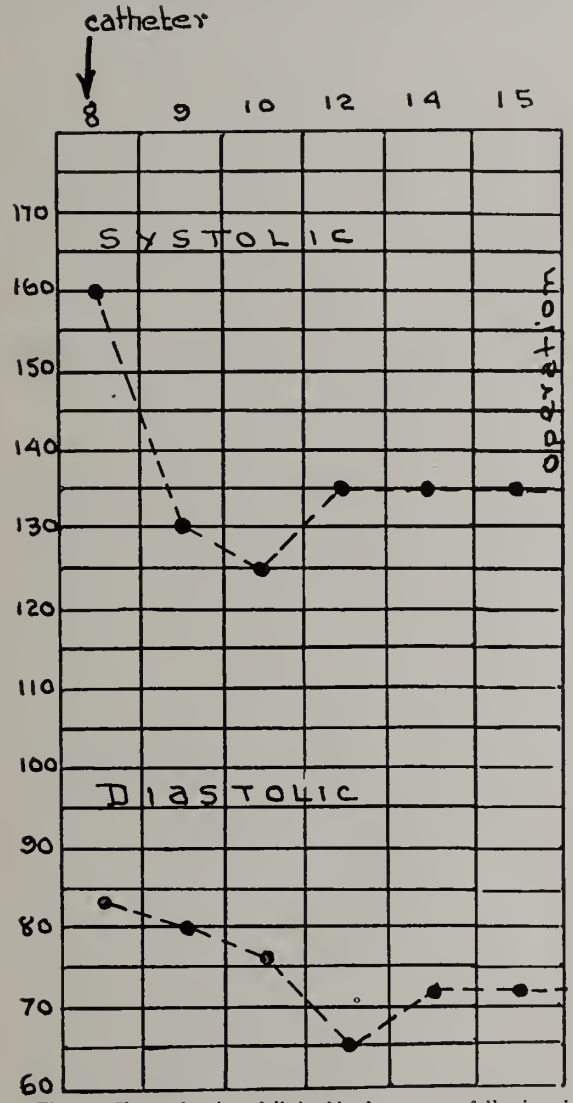


Fig. 5—Chart showing fall in blood pressure following institution of drainage of the bladder. Note that after a few days the blood pressure reaches a constant level.

in some cases as it does on the damaged kidneys. There is always a marked fall in blood pressure following the relief of long-continued retention of urine, and we believe that this is a considerable factor in the suppression of urine following the too rapid emptying of a distended bladder. It is our custom to empty all bladders gradually when there is a residual of more than ten ounces. We have noted a fall of 35 points in the systolic pressure following the institution of drainage when the residual was only eight ounces. (Fig. 5).

It will usually be noticed that following the institution of drainage the patient's kidney function, blood pressure and sense of well-being decline together for the first few days, and during this time the patients are closely watched. A full intake of fluids is required, and active supportive measures are instituted if necessary. Digitalis is the most reliable drug and is given to complete digitalization. Frequently strychnine seems to add to the general tone of these old men and may prevent flatulence and intestinal torpidity to which they are prone. Diuretics have not proven of value in our hands, and hot packs are too depressing for the average old man. We have usually had no trouble controlling uremic symptoms by a large fluid intake, free elimination by the bowels and cardiac support.

Following the institution of drainage, the blood pressure is taken daily and the kidney function checked up from once to twice a week, according to the patient's general condition. We use the phenolsulphonephthalein test, the blood urea nitrogen estimation and the specific gravity and total volume of the urine as guides to the kidney function. These tests often show marked fluctuation during the first few days following drainage. When the kidneys become adjusted to normal conditions and begin to improve in function, the tests taken at different times become more constant, indicating that the kidneys have reached their normal function. The blood pressure also fluctuates markedly following the institution of drainage, and we require that a constant blood pressure be maintained at least three days before prostatectomy is done. Every patient with any cardiac weakness is thoroughly digitalized before operation.

The choice of an anesthetic enjoys a prominent place in the literature on this subject. At first we used ether, then gas-oxygen, and recently ethylene-oxygen anesthesia. In the light of our present knowledge, ethylene-oxygen is an ideal anesthetic for these patients. It gives sufficient relaxation for operation by either route, does not retard the function of any organ, and is peculiarly free from

nausea and flatulence so distressing to these old men.

Just before the patient is taken to the operating room his urethra and bladder are thoroughly irrigated with boric acid solution and about one ounce of ten per cent argyrol is injected into the bladder through the urethra. As soon as the patient is under the anesthetic, hypodermoclysis of Locke's solution is started. In this way a large amount of fluid is given without discomfort to the patient and when most needed.

When the operation is over, the patient is returned to a warm room and kept absolutely quiet, sufficient morphine being given to relieve all discomfort. The pulse is closely watched, and frequent blood pressure readings are taken. In the event of excessive bleeding the packing is reinforced. The hypodermoclysis is kept up during the first twenty-four hours or until the patient has taken about 2,000 c.c. Fully ninety-five per cent of all prostatic fatalities are due to shock, hemorrhage, uremia and sepsis. A persistently low blood pressure from shock or anemia from hemorrhage, in addition to its immediate danger, predisposes the patient to uremia and sepsis. Hemorrhage is a predisposing factor in shock, and we have found direct blood transfusion of inestimable value in the treatment of both hemorrhage and shock. In three of our cases we believe it saved the life of the patient. In others it has insured a smoother convalescence.

At the end of twenty-four hours after operation the packing is removed under ethylene-oxygen anesthesia, and any loose sutures are tied. This is done in the patient's room. Thorough drainage is assured either through a suprapubic tube or in-dwelling catheter. Both the external wound and bladder are irrigated daily with warm boric acid or potassium permanganate solution. The patient is thereby kept more comfortable and the danger of sepsis is minimized.

Uremic symptoms following prostatectomy in properly prepared patients are usually due to an ascending infection from the bladder brought on by disintegrating blood clots or incomplete drainage. The attack is ushered in by a chill followed by high temperature, a diminished urinary output and sometimes with delirium or coma. The patient usually responds promptly to forced fluids and irrigations of the bladder.

For the prevention of pulmonary complications, the patient's position in bed should be changed frequently and he should be set up in bed as soon as possible. To insist that he get out of bed in three or four days, especially against his will, is not consistent with the best interests of the patient.

In conclusion, we would emphasize the necessity of a stable kidney function and circulatory system before operation, and the desirability of selecting the operative route to fit the character of the growth. We wish also to emphasize the value of the direct transfusion of blood in the treatment of severe shock and hemorrhage, and to call further attention to the value of forced fluids, free drainage and the continuation of cardiac stimulation, when necessary, as prerequisites to a smooth convalescence.

617 *West Grace Street.*

THE MINIMUM STANDARD OF CARE THAT SHOULD BE ACCORDED THE PUERPERAL WOMAN.*

By BURNLEY LANKFORD, M. D., Norfolk, Va.

The interest in the pregnant woman too often wanes with the delivery of her child, and scant attention is given her during the next six to eight weeks. Those of us who are interested in obstetrics and increasingly better obstetrics, in our efforts to better the art, should endeavor to encourage the practice of extending to every woman just as careful post-natal attention, as she has received pre-natal attention. Such care would unquestionably result in great benefit to the women of the land.

It is not more difficult to secure the co-operation of women, in the effort to properly follow them after delivery, than it is to get their co-operation during pregnancy, when we are trying to conduct them to a safe conclusion. In a series of three hundred consecutive cases recently reviewed in my own work, there were only four who neglected or refused to return for a final examination, six weeks or thereabouts, after delivery. Few women will persistently neglect themselves, if the importance of this final survey be explained to them.

For the purpose of this paper, let the puerperium begin one hour after the end of the third stage of labor. There should be a place on every chart or in every note book, for the

*Read at the meeting of the Seaboard Medical Association of Virginia and North Carolina, in Newport News, Virginia, December 4-6, 1923.

following notes which should be recorded by the attendant himself, one hour after the expulsion of the placenta: the temperature, the pulse, the location and condition of the fundus, and the amount and character of the lochia. If this be regularly done, certain accidents of the early puerperium will be avoided, and the later puerperium be made more comfortable. Most of the bleeding from the uterus takes place during the first hour after delivery, and if at the end of that time, gentle, purposeful pressure be made upon the fundus, several clots, possibly large ones, may be expressed from the upper vagina or lower uterine segment, thereby saving the patient many uncomfortable after pains as well as getting rid of a possible nidus of infection. However, the greater value of this close observation of the patient after one hour is the prevention of what is often called a "late" or "secondary hemorrhage," which is usually not discovered until some hours later, when huge clots may be passed, which frighten the patient, the nurse and the doctor. What has happened is not a secondary hemorrhage at all, but the later expulsion of previously formed, large clots, the result of continuous oozing from the placental site, and retained in the vagina and uterus, this retention being encouraged by the dorsal position and the practice of having the woman's legs held tightly together.

The inner surfaces of a woman's thighs when apposed, lightly seal the vaginal outlet and, when in addition a tight thick pad is applied and the woman cautioned to keep her knees together, we have, in the presence of slow oozing, all the conditions conducive to the formation and retention of clots, and for the continuation of the bleeding: the uterus cannot contract and retract properly when clots are present in its interior.

The attending physician should assure himself that the patient has been made comfortable before he leaves her, a comfortably applied abdominal binder (which when properly applied *is* a comfort), a pillow under her knees, or a comfortable lateral position, with pillows to back, a semi-darkened room, an encouraging word to the young mother, an admonition to relax and go to sleep, after which she may have and nurse her baby. Such little attentions are presumably the nurse's business, but they should be the doctor's as well, and no little detail that will tend to make a mother comfortable, after the trying ordeal through which she has just passed, should be neglected by, or thought beneath the notice of, the attending physician.

After six or eight hours or sometimes longer, depending upon various circumstances, the baby should be put to the breast for a period not to exceed five minutes. The nursing should be limited to five minutes at each period, until the milk begins to flow freely. The claim is made by some that the baby should never be put to the breast until the milk begins to "come in:" and that such practice is a certain preventive of cracked nipples. This would seem to be carrying a good point too far, and would probably invite as many difficulties as it would prevent. However, it is certainly true that if a hungry, vigorous baby be put to a breast every three or four hours and allowed to remain there for fifteen minutes or longer, *before* the breast has begun to secrete freely, such a breast runs a great risk of having the nipple macerated and blistered, and later on, cracked, fissured or excoriated. Five minutes every four to six hours will be sufficient to exercise the needed stimulating effect upon the uterus and breasts, and to give the baby its immunizing (?) dose of colostrum: such a schedule will slowly accustom the epithelium covering the nipples to the unusual strain, and give it a chance to react gradually, with thickening of the superficial layers, rather than rapidly, with probable blister formation. When the milk flow is established and the baby does not have to spend most of his time chewing the nipple, the period of nursing may be lengthened to fifteen minutes or thereabouts every three or four hours. Where a baby is satisfied and gains consistently on a four-hour schedule, such is unquestionably more satisfactory to all concerned than the three-hour schedule. My own experience has been that the four-hour, *satisfactory*, schedule has been the rare exception. Should labor terminate around nine or ten P. M., it will be wise to see that the mother is given an undisturbed rest for the remainder of the night; the baby need not be put to breast before morning.

The nipples should be carefully protected at all times when not in actual use. Prospective mothers should be advised to have gowns opened down the front (by snappers), so that the breasts may be easily accessible: the necessity of having to pull the gown up from

the bottom in order to properly expose the breast for nursing or examination, is very poor technic. A very simple plan of protecting the nipples is this: an ordinary shoe eyelet is fastened on to a small strip of Canton flannel, one by two inches, (by a shoe-maker, or a shoe-maker's tool), such a strip is fastened on to the skin on each side of the nipple, by a small piece of adhesive plaster, a square of gauze is then placed over the nipple and held in place by stretching a little rubber band from one eyelet to the other. Such a dressing is very easy for the nurse or mother to take care of, and the easier such little details are, the more likely they are to be observed. When the nipples become sore or excoriated, the most comfortable protection I know of (which can also be held in place by the strips and bands just mentioned) is furnished by the lead or aluminum nipple shield, which is to be worn directly over the nipples at all times, except when being nursed. The lead shield is an old affair which certainly deserves to be re-discovered. Any crack os fissure should be touched at once and quite accurately, by the solid stick of silver nitrate. The most convenient way of applying silver nitrate is to have round pointed tooth picks dipped into the pharmacopoeial reagent known as Argent Nit. Fusum. This leaves a tiny bit of solid silver nitrate on the end of each pick, with which a crack or fissure may be accurately touched, which is difficult to do with silver solutions.

When the breast becomes engorged and tender as many do about the second or third day, nothing gives so much relief from pain as the proper application of two long, broad, supporting bands of adhesive plaster. Such bands should be two or more inches wide and long enough to stretch from axilla to axilla. While the breasts are held upward and inward (strongly) by the nurse, the lower band is applied and should run from one axilla to the other, under the breasts, exerting a lifting pressure. While the breasts are then held inward by the nurse, the second band is applied from axilla to axilla, and running across the upper portion of the breasts exerting a strong inward pull upon each breast. The edges of these bands should not approach nearer than two inches to the nipples. If we look upon the breasts as a wheel with the nipple as the hub, the adhesive bands serve to keep the spokes or milk ducts straight, whereas the breast binder, no matter how carefully applied, seldom does more than press the breasts back against the unyielding chest wall, with consequent kinking of the ducts and engorged blood and lymph vessels, with formation of tender lobules, or whole lobes may be thus affected. Such bands not only have the advantage of holding the breasts more comfortably and efficiently, but also do not have to be applied but once; the breast binder has to be opened and re-applied every time the baby nurses. There is no comparison between the relief afforded by the two methods. A woman who has been suffering for hours with engorged and hanging breasts will experience almost instant relief and will often spontaneously and gratefully thus express herself. After the stage of engorgement has passed, the plaster should be removed, and will seldom have to be re-applied. If taken off at the proper time, the skin will not have been irritated.

Many remedies have been advanced for the relief of after pains. If the uterus has been made to expel the clots formed shortly after the expulsion of the placenta, and, despite this, the contractions be of sufficient severity to keep the patient miserable, the one remedy that may always be depended upon to give relief is a small dose of morphia under the skin. It should be remembered (and explained to the patient) that a certain degree of after pains is physiological and necessary: a small dose of morphia will relieve the *pain* without interfering markedly with the contractions of the uterus, which is the end to be sought.

In the interest of good drainage, it is good practice to elevate the head of the bed in every case. With the promotion of efficient drainage also in view, the patient should be instructed to keep her knees well apart at all times. When a woman with average size thighs lies on her back with knees together or slightly crossed, the vaginal outlet is completely closed and drainage markedly impeded. This is a very important prophylactic measure, and not only should the nurse and patient be carefully instructed about it but in addition the attending physician should see that his orders are being obeyed. Several times during the twenty-four hours the patient should be turned, or made to turn, on her face with knees well apart, and kept in that posture for half an hour. This helps to empty the vaginal cul-de-

sac where the lochia tends to collect, stagnate and cause unpleasant odors, if nothing worse. The compliance with the above directions will not adversely affect any sutures that may be present.

Every effort should be made to have the post partum woman void, before resorting to the catheter. There are very few who will be unable to void within the first twelve hours if the following routine be regularly followed: first, a warm bed-pan and warm sterile solution poured over the vulva; if not effective, second, an s. s. enema, warm bed-pan and warm solution poured over while enema is being returned; if still ineffective, third, a second s. s. enema and patient held in upright position by nurse while enema is returned. In the meantime the patient should be (subtly) threatened with catheterization, if she does not void! If these all fail, sometimes the injection of one ampoule of pituitrin, given about fifteen minutes before the attempts at voiding are to be made, will produce the longed for flow of the amber rill! If catheterization has to be done, as it sometimes will, it should be with minute care, and, it seems to me, it should be done the first time by the doctor who confined the woman. It is usually the cases of difficult labor, severe laceration, etc., that have to be catheterized, and the doctor who did the repairing knows that particular lacerated anatomy much better than a nurse. If a rubber catheter is to be used, the process will require two persons to perform it properly, one to expose and keep exposed the introitus, by very carefully and gently separating the labia, while the other gives entire attention to securing an aseptic field and to passing the catheter, which should be handled with thumb forceps and not touched, even with the gloved fingers. If in addition to these precautions, the catheter be *well lubricated*, catheterization may be done without fear of producing an irritable urethra or cystitis. Dr. Howard Kelly, many years ago apparently proved that the surest way of preparing an aseptic introitus, for the passage of a catheter, is to sponge the introitus with three wet, boric acid sponges followed by one dry, and this twice repeated (twelve sponges in all). Do not let nurse or patient assume that because the catheter had to be used the first time it will have to be repeated.

For the first week after delivery, it seems to be good practice to do away with purgatives and, in their stead, give s. s. enemas every other morning. McPherson, at the New York Lying-In, recently initiated this plan and, in three hundred and twenty-two cases, thus treated, there developed only three febrile temperatures during the puerperium, while in a like number of cases, treated as controls, at the same time, with the ordinary purgatives, there developed twenty-eight febrile cases. Thus, in addition to apparently reducing the incidence of febrile cases, which is of paramount importance, only one movement is produced which can be timed to suit the convenience of the patient and nurse, whereas with purgatives several movements may be the result and possibly at inconvenient time. Enemas do not affect the baby nor the milk secretion, whereas purgatives often do. After the first week it is no doubt wise to give a brisk laxative once, in order to be certain that the whole bowel is well evacuated.

Several days after delivery, exercises should be begun for the purpose of strengthening the abdominal muscles. The simplest and easiest is to have the patient, without pillow, raise her head until she can dig her chin down against her chest: by this simple maneuver the muscles of the abdominal wall are gently exercised as can be well demonstrated to the patient by having her lay her hand against her abdomen as she raises her head. Having her do this will enlist her interest and assure her co-operation. This exercise is easy but efficient and not too vigorous. Most women will take them where many cannot, and as many more will not take the more difficult body and leg raising movements.

As to diet: let the normal case eat what she wishes and as soon as she wishes. Of course some discretion should be used about the digestibility of various foods while a woman is lying around doing no physical work; the practice which seems widespread today, of giving the post partum woman a square meal as soon as she wants it, seems wise.

One of the first questions women begin to ask during their lying-in period is, "When may I get up?" The same answer cannot be given to each. When a woman has been through an uncomfortable, trying pregnancy, followed by a difficult or prolonged labor, a good long rest in bed will surely be to her benefit. On the other hand, certain patients may be al-

lowed to begin getting up very much earlier. It would seem better to err, if at all, on the side of keeping them in bed too long than not long enough. In any event, a back rest may be allowed after the first few days, which is not only pleasing to the patient but also promotes drainage. About the twelfth to fourteenth day a gentle pelvic examination should be made. Beginning displacements and subinvolution may be detected at this time and appropriate measures taken to correct them.

From the sixth to eighth week post partum, a final examination should be made, which should be more or less of a complete physical. At the least a note should be taken on the weight, blood pressure, urine, breasts, abdomen, pelvic floor, pelvis and contained organs. The importance of this final examination should be impressed upon the patient, else many will side-step it, wilfully or carelessly, until forced to seek relief at some later date, by symptoms that should have been, and in most cases could have been, prevented. For instance, in a series of three hundred consecutive cases of my own, recently reviewed, seventy-two were found to have retroverted uteri, six weeks after delivery. Fifty-nine of these after having been replaced remained in good position thereafter, either without any further treatment, or after having been held for one month by a pessary. These fifty-nine were all checked up by further examination, approximately four weeks after the removal of the pessary. The remaining thirteen had to wear pessaries for longer periods, one of them as long as seven months, during which time she became pregnant again. The pessary was not removed until the fundus cleared the promontory, after which it was removed and the patient went on to term. (Following this delivery, there was no return of the displacement). Only three of the seventy-two fell into the class of repeated retroversion whenever the pessaries were removed, and these three were advised to have suspensions done. Five cases required an anaesthetic before the fundus could be righted, not so much because of great difficulty of manipulation as because of the hypersensitive type of woman. A recently retroverted uterus is not difficult to replace: a displacement of long standing is not only more difficult to correct, but also less likely to stay corrected after the support has been removed. This in itself is sufficient reason for making a pelvic examination six weeks after labor.

The study of even so few cases as these shows that much discomfort, probably much semi-invalidism, and doubtless many abortions, may be prevented by such simple measures of treatment when instituted at the proper time.

When potential cystocele, rectocele, or both, are found at the final examination, an effort should be made to correctly evaluate the degree of distress or discomfort being caused the patient, and reparative surgery advised in the near, or more distant future. In any event, where the functional or cosmetic result has not been good, it will be wiser to tell the patient in language that will enlighten but not frighten her, that at some time in the future she will probably need reparative surgery. Otherwise she may fall into the hands of some friend or some thoughtless (or vicious) confrere, who will inform her of what a sad condition she was left in by the last doctor who confined her!

The profession now pretty well recognizes the fact that some muscle tears are inevitable, and that the supporting fascias are always over stretched and torn, and that exceedingly few women have as good pelvic floors after childbirth as they had before. No woman should be discharged without having this explained to her, for two reasons: first, women should not be allowed to think that they will re-assume the virginal state of their anatomy after childbearing, nor on the other hand should they be allowed to suffer from the uncomfortable consequences of badly torn structures, under the impression that such consequences are irremediable and that all women must suffer thus after parturition; second, the obstetrician should not be held totally responsible by the public for certain unavoidable conditions the result of childbearing. Such misapplied responsibility is encouraged whenever a woman is discharged without a final examination, or when, after such examination, she is not told her true condition but later on finds out from some other source.

The object of all serious obstetricians is to leave the woman in as good or better condition than when she became pregnant: if this end be steadfastly borne in mind by every one who does obstetrics, it is inevitable that the women of the future will enjoy better health than

have those of the past or those of the present, after they have made their great and distinctive contribution to the race. We should see to it to the very best of our ability that women are not penalized for this contribution.

"No questor for the Grail,
No searcher for the Truth,
Counts more than those who bear and rear
And love and nurture Youth!"

530 *Shirley Avenue.*

GASTRO-ENTEROSTOMY IN RETROSPECT.

By J. KENNEDY CORSS, A. M., M. D., F. A. C. S.,
Newport News, Va.

Surgery of the upper abdomen has received so much attention, and the number of operations and methods is so constantly increasing that I will not attempt to discuss or review them, but will confine myself to the report of a few of the old cases, and try to show the value of, and indications for, the old and much discredited operation of posterior gastro-enterostomy.

The first gastro-enterostomy was an anterior one done in 1881, but it was ten years later, in 1891, when the first successful posterior gastro-enterostomy was done, and in the next five years the operation was brought prominently before the profession by the work of Moynihan and W. H. Mayo. It soon became popular as a cure for almost all gastric and duodenal conditions, except cancer, and a palliative one for that condition.

The result of this widespread trial of the operation in the hand of many surgeons inexperienced in gastro-intestinal surgery was many failures, and many cases left worse than they were before any surgery was attempted. It did prove successful in the hands of the few who carefully selected their cases; and it also demonstrated the wide possibilities of surgery of the stomach, and laid the foundation for the wonderful work of today.

The pendulum has swung a long way since then to the pyloroplasties of Finney and Horsley, to the partial resections and excisions of today. It is not uncommon to hear the operation of posterior gastro-enterostomy described as obsolete, unphysiological, that it does not cure, the relief is only temporary, and the anastomosis only functions for a short period and then closes or ceases to act. The fact remains that it does function for years, that it does cure in properly selected cases, and that the failures were those of surgical technique, or wrong selection of cases that should have been resected, or had a pyloroplasty, or the large number of ulcers that called for simple rest and diet, either with or without appendectomy.

In my own work, covering a period of over fifteen years, I have never done a posterior gastro-enterostomy for a gastric ulcer, except one that has been situated at the pylorus, well healed and causing obstruction, and though these cases did well, at the present time I would prefer a resection, using the Bilroth direct anastomosis if possible. The indications for operation, in my opinion, are duodenal ulcer, where from location or inability to mobilize the duodenum, it is impossible to resect partially the stomach and duodenum, or where any dissection or infolding of the ulcer would cause so much stenosis that a new outlet from the stomach was necessary. It is in these cases the advocates of pyloroplasty claim their best results, but, personally, I prefer resection or posterior gastro-enterostomy to the other method. The question of closing the pylorus is not a vital one, and I see no reason in most cases to do it.

My following report is of a few old cases, dating from six to sixteen years ago, which I think demonstrate that the stoma does continue to function in most cases, and that the clinical condition in these cases is such as to justify the report as "cured."

Case 1.—Large duodenal ulcer complicating the vomiting of pregnancy. No gastric symptoms since operation sixteen years ago. Stomach empties through stoma in forty-five minutes. (Not in good evidence in X-ray, but does show under fluoroscope).

Case 2.—Daughter of Case 1. Also duodenal ulcer with contraction. Stoma open. No gastric symptoms after thirteen years' duration.

Case 3.—Large duodenal ulcer. Under medical treatment for two years—no relief. Post gastro-enterostomy eleven years ago. No gastric symptoms. Stoma open.

Case 4.—Severe gastric symptoms. Complete invalid, vomiting, eructation and hunger pains. This case was operated on seven years ago, and has fair health only. Has since been explored for cancer with negative findings. The stomach empties too rapidly. Gastric analysis shows nearly absence of hydrochloric acid due to its not being retained in

the stomach. She has been greatly benefited by a diet of heavy food and less liquids.

Case 5.—Almost complete pyloric obstruction due to a large gumma involving the pylorus and about one-third of the stomach; only thin liquids could pass. Gastro-enterostomy relieved the emergency, and luetic treatment relieved the gumma. Here the major part of the food is passing through the pylorus, but the anastomosis is open. General health good.

Case 7.—This case suffered such severe pain that it was a differential diagnosis between gall-stones or ulcer. A large duodenal ulcer was present. Posterior gastro-enterostomy and no symptoms for six years, since operation. The X-ray shows a small stomach, but does not show the stoma as patulous, though I think a series of pictures would show it.

Illustration of Case 6. In printing from negative, picture was reversed.

Case 6.—This case was the largest duodenal ulcer I have ever seen and, if it had involved the pylorus or stomach, I would certainly have diagnosed as cancer. There was a history of severe intestinal hemorrhages for years, and all symptoms of duodenal ulcer, with obstruction. This case was operated on about seven years ago, and has been in perfect health since that time. You note that practically all the barium meal is passing through the opening.

Case 8.—Is a resection for pyloric ulcer, which under microscope showed beginning cancerous degeneration. A resection was done

of about one-third of the stomach and part of the duodenum which was easily mobilized, and the direct anastomosis of Bilroth. This was one of the cases that would have been a failure under posterior gastro-enterostomy. It also shows an enlargement of the stomach, while the posterior gastro-enterostomies generally show some diminution in size.

During a recent visit to one of the leading clinics of this country, I saw a case of large duodenal ulcer operated on, in which it was impossible to remove the ulcer or resect that portion of the duodenum. The operator did a resection of about one-third of the stomach and pylorus, leaving the ulcer and doing an anastomosis of the jejunum to the cut edge of stomach. His explanation was that the ulcers were due to hyperacidity and, by lessening the size of the stomach, it lessened the secretion of acid. In a recent article by Carl Beck, describing his visit to many foreign clinics, he states that this opinion is generally held and followed by the surgeons of Central Europe, as their reason for resection of stomach, irrespective of removal of the ulcer. It seems to me this is a very radical method of controlling hyperacidity. In the same article he states that the English surgeons, as a rule, treat ulcer of the duodenum by gastro-enterostomy, and with good results.

In a recent article from the Mayo Clinics (1921—by Ensterman), they state that "a properly performed gastro-enterostomy in the presence of a chronic indurated ulcer of the duodenum or pylorus, is a splendid physiologic procedure." Also in the same article, "Carman, on repeated fluoroscopic examinations at variable intervals after operation, has shown that (1) the stomach is usually smaller than before operation, unless marked dilatation existed previously; (2) the stomach empties in considerably less time than the normal unoperated stomach; (3) the opaque meal passes freely through the stoma, which does not tend to contract materially." In conclusion, he states that "my experience with end results of several hundred well executed pyloroplasties, many performed under favorable circumstances, has not been encouraging. Recurrence of ulceration in the suture line adhesions to adjacent viscera, induration, contraction and narrowing, which provoke faulty pyloric mechanism and serious functional disturbances in the absence of adequate obvious cause are occasional sequelae. My answer to the charge that gastro-enterostomy is an unphysiologic procedure is that at least fifteen per cent of pyloroplasties eventually prepare a rich soil for a highly successful gastro-enterostomy."

In conclusion, I would say that one of the greatest advances in gastric surgery is the partial resection by any one of the accepted methods; but that the much maligned operation of posterior gastro-enterostomy still holds a strong and unshaken place in properly selected cases of gastric surgery.

THE PNEUMONIAS, THEIR ETIOLOGY AND DIFFERENTIATION.*

By CHARLES R. GRANDY, M. D., Norfolk, Va.

You have given me as my subject for discussion, "Pneumonia, Its Etiology and Diagnosis," but I hope you will pardon me for taking the liberty of changing it a little, and presenting you a short paper on "The Pneumonias, Their Etiology and Differentiation."

Pneumonia is well-known to us all for, taken as a whole, it is probably the commonest as well as the most fatal of all the acute diseases. Still we can never feel certain of it, as it acts so differently in different cases, and our prognosis one year may be a great deal worse than on the year before. Indeed, it is usual to class it as our most treacherous and fatal malady, which may appear as a complication of almost any disease, and may be so mild as to escape detection, or so severe that the prognosis appears hopeless from the beginning. The reason for this is that pneumonia should not be considered as one disease, for the term only means an acute inflammation of the lung, which may be produced by various infectious organisms, and which runs a different course according to its differing etiology. It is therefore not enough to diagnose a case as pneumonia in order to decide on its treatment and prognosis, but we should attempt, as best we may, to determine its etiology. I am therefore going to try to give you a short, and necessarily incomplete, sketch of the etiology of the most common of our pneumonias, and their possible differentiation clinically.

The first great division of the pneumonias is into the lobar pneumonias and the bronchopneumonias. This division is a marked one, both clinically and pathologically, if the dis-

*Read before the Norfolk County Medical Society.

ease runs a typical course, but etiologically either type may be produced by the same infecting organism, though there is no one organism which is always the cause of either.

Lobar pneumonia is defined as an acute infectious disease characterized clinically by a toxemia with fever, which often terminates by crisis, and pathologically by a uniformly diffuse inflammation of contiguous portions of one or more lobes of the lung, the cause of which is usually the diplococcus pneumoniae.

Broncho-pneumonia on the other hand runs no fixed course, produces various lung lesions, which can be roughly grouped as interstitial or lobular, but which vary greatly in extent, and which is caused by a number of different micro-organisms.

Lobar pneumonia, though varying with the epidemic, has the characteristics of a specific infectious disease; broncho-pneumonia lacks these characteristics entirely and, as Louis Hamman says, is really "a heterogenous mass of clinical material" rather than a specific disease.

Acute lobar pneumonia is generally recognized as being usually produced by the diplococcus pneumoniae or pneumococcus, other organisms such as Friedlander's bacillus and streptococci being only infrequent causes of this disease. But the pneumococcus group is not homogeneous, there being many different varieties which, though looking and growing alike, have different effects on the body and different serological reactions. This accounts for the differences in the severity of our pneumonias in one year, when practically all get well, from another year, when a large percentage of the cases are fatal (though I must say we are apt to attribute the results in the former case to our skillful treatment, and in the latter to the will of God). It is therefore customary to group pneumococci into four types, the first three having distinct serological characteristics, and the fourth being made up of the remaining kinds.

It is of interest to note that Types I and II, while found in the mouths of the majority of cases of acute pneumonia, are seldom found in the mouths of healthy persons, who have not come in contact with pneumonia cases. On the other hand, the pneumococci which are found in about fifty per cent of normal mouths belong almost entirely to Types III and IV. Pneumonias, occurring more or less in epidemics, belong to Types I and 11 as a general thing, while the sporadic cases are most frequently of Types III and IV. It would thus seem that infection with Types I and II depends to a large extent upon direct or indirect contact, while Types III and IV are apparently or largely due to decreased resistance on the part of the host to organisms usually harmless. It is in these last cases that such predisposing causes as chilling, exposure, fatigue, and trauma are of special importance.

As lobar pneumonia can only be regularly produced in monkeys by injection into the trachea and bronchi, it seems that infection at least in Types I and II must be air borne, while that from Types III and IV may be air borne, if derived from without. While natural immunity protects most of us, pneumonia cases should be treated as potentially contagious, and care taken to protect others from sputum and droplet infection. A pneumonia patient in a ward is much more dangerous than a case of tuberculosis.

As mentioned before, broncho-pneumonia is not a clinical entity and, as might be expected, its etiology is not uniform. It is not generally an independent disease, but is usually secondary to some other disease. Furthermore, it is not commonly produced by the bacterium of the primary disease, but is most frequently produced by one or more bacteria, which only get a foothold in the lung after the resistance of the patient has been lowered. Still there are epidemics of primary broncho-pneumonia due usually to the streptococcus, such as occurred in some of our cantonments in 1917, while a primary broncho-pneumonia is not at all uncommon in young children. As a secondary infection it may accompany bronchitis, and it often follows measles, whooping-cough, typhoid, diphtheria, and influenza. In diphtheria, tuberculosis, and in some epidemics of influenza, the broncho-pneumonia is due to the bacterium causing the primary disease, but in the majority of cases following influenza, and in those accompanying other specific infections such bacteria as the pneumococcus, streptococcus hemolyticus, or staphylococcus aureus are usually the causative agents. But many other organisms have been isolated in special cases of broncho-pneumonia.

We formerly thought that the broncho-pneumonias practically only occurred in infancy and old age, but our experience in the late in-

fluenza epidemic soon convinced us all that even the most robust young adults were subject to a fatal attack. And at the same period a more general use of the X-ray showed us that broncho-pneumonia was many times more frequent than was generally believed, and that in hospital practice at least "Bronchitis is rarer than broncho-pneumonia" (Nellis B. Foster), while others go so far as to say that a general bronchitis seldom occurs without areas of broncho-pneumonia. In the milder cases, there are few, if any, symptoms pointing to the presence of a pneumonia, and the patient usually recovers without a diagnosis and without serious results. On the other hand, we all recognize broncho-pneumonia as most serious for the weak and the aged, while the severe types, such as we met in the influenza epidemic, are to be feared by all.

As there are many causative factors in producing the broncho-pneumonias, so there are various types of the disease. Sometimes the symptoms are so trivial and indefinite that the presence of broncho-pneumonia can only be surmised, while other cases may be most dramatic. In contradistinction to lobar pneumonia the onset of broncho-pneumonia is usually insidious, its course and duration indefinite, and its termination by lysis. The fever, respiration, and leucocytosis are also lower than in lobar pneumonia, though these vary with the infecting organisms. The sputum may be merely mucopurulent, but may contain bright blood, being seldom rusty as in lobar pneumonia. The physical signs too may be very variable and indefinite. These may be merely a little patch of fine rales found to correspond with an increase in the symptoms, or perhaps only a local change in the whispered voice, which may be followed by dullness and broncho-vesicular breathing. These signs may remain in one place, or apparently shift around, while the areas of consolidation may persist long after the disappearance of fever.

We can only hope to diagnose all our pneumonia cases by constant watchfulness and care for, to quote Bloomfield, "there is no diagnostic syndrome specific of broncho-pneumonia. The physician must be familiar with the conditions under which the disease is likely to occur, and be on the watch. In any patient with bronchitis, acute or chronic, with any pulmonary disease, such as cyst or tumor, in acute infection, especially measles, influenza, scarlet fever, diphtheria, smallpox, or sepsis, in any chronic or wasting disease, in any old debilitated or bedridden patient, the possibility of broncho-pneumonia is ever present. It may develop insidiously without revealing symptoms or signs, but careful note of cough and sputum, and painstaking physical examination of the chest will usually save the physician from mistake."

Before closing this little paper, let me compare a few of the common forms of pneumonia, so as to bring out their points of difference. Terminal broncho-pneumonia in wasting diseases and in the aged gives few striking symptoms. There is usually some rise of temperature and a cough, though neither may be marked. On examination, moist rales, slight dullness, and diminished breathing are found in one or both lower lobes. But distinct broncho-pneumonia is found at autopsy. In contradistinction to this let us recall some of our cases of influenza pneumonia. A patient instead of improving has his temperature rise on the fifth or sixth day of his influenza. The cough increases, as does his respiration, while the face becomes flushed, or may be cyanotic. The physical signs are indefinite, and may only present a small area of fine rales with increased high pitched voice. Later the rales increase, are found on both sides, and dullness with areas of bronchial breathing may be found. The cyanosis increases out of proportion to the respiration, and the sputum contains bright blood. All this time there may be no leucocytosis and a low blood pressure. Though an autopsy on such a case also reveals broncho-pneumonia, could the symptoms be more absolutely different from those in the case of terminal pneumonia?

And on the other hand, how different is each from a typical case of lobar pneumonia, starting with a chill, a sharp pleuritic pain, cough with rusty sputum, rapid respiration and pulse, high fever and marked leucocytosis, running a comparatively fixed course, and terminating by crisis. And the physical signs in typical lobar pneumonia are as pronounced as they are indefinite in some of the cases of broncho-pneumonia. Would it be possible to find more different clinical pictures, for they practically have only one common symptom, cough, which likewise may be very slight in a terminal pneumonia?

Then the etiology may be different in all

these, lobar pneumonia being generally produced by the pneumococcus, the influenza pneumonia (as described) by the streptococcus hemolyticus, and the terminal pneumonia by various bacteria, possibly the staphylococcus aureus.

And yet we class them all as pneumonia. No wonder we have trouble with our diagnosis and prognosis, for we are evidently grouping under one heading a number of different maladies. Let us hope that some one may be able to make a practical differentiation which will allow us ordinary doctors to separate and treat these various infections in a more exact and scientific manner. Until this is done, our work on these cases must be unsatisfactory, and the hope of materially reducing the appalling mortality from the pneumonias must be left to the future.

Bank of Commerce Building.

DIVERTICULITIS OF THE COLON.

By CARRINGTON WILLIAMS, M. D., Richmond, Va.
Associate in Surgery, Medical College of Virginia.

Diverticula may be found in any part of the intestinal tract. Their occurrence in the esophagus and small intestine has been recognized for many years, but only in the last fifteen years has it become generally known that the large bowel is the most frequent site for this pouch-like structure. Beyond question, many cases have been overlooked either because they have given no definite symptoms or because the true pathology has gone unrecognized even at operation.

Diverticula of the colon are most frequently found in the sigmoid, but may occur at any point along the large bowel, including the appendix vermiformis and the rectum. The diverticulum is generally termed "true" when its wall contains all the elements of the bowel wall; it is "false" when the muscular layer is not present. The terms "congenital" and "acquired" have been applied respectively to "true" and "false" diverticula, but careful microscopic studies have made this classification untenable, and have indeed shown the division into "true" and "false" to be but different stages of the same process.

The diverticula may vary greatly in size. They may be discoverable only by miscroscopic examination, yet they may grow to be twelve inches in diameter. Perhaps the average size is that of a buck-shot. The appearance of the diverticula depends on the location and amount of inflammatory deposit. They may be tucked away along the mesocolic attachment, buried under a thick covering of fat, or pushed into an obese appendix epiploica. If they are numerous and not inflamed, the bowel is studded with teat-like projections. If inflamed, they may be buried in a hard mass of new-formed tissue. This variation in size and their ability to hide, account for the wide variation in the reported frequency of the condition; one pathologist reports one in one thousand autopsies, another thirty in one hundred. When small and not filled or inflamed, the wall of the diverticulum shows microscopically the structure of the large bowel; when much distended by fecal contents or distorted by infection, the mucous lining is flattened and the muscle much attenuated or even destroyed. There are, however, many reports of intervening stages of the presence of muscle which would indicate that a false is simply a true diverticulum partially destroyed. The cause of diverticula is not and probably never will be thoroughly established. Congenital origin has been much discussed and probably a congenital weakness must be admitted, yet there are factors which contribute more largely in their formation.

The anatomy of the colon is important; first, the longitudinal muscle arrangement into bands; second, the thick deposit of fat under the serous coat and into the appendices epiploica in obese individuals; and third, the perforation of the muscular coat by blood vessels. It is significant that diverticula of clinical importance are found most frequently in patients beyond middle life when all muscles of the body are weakened. They occur most frequently in obese individuals, and some claim while others deny that conditions which slow up the blood return from the colon, such as cirrhosis of the liver, predispose to diverticulum formation through the point of blood vessel perforation. The colon at times is greatly distended with slow moving fecal material and gas; the pressure which this would exert on a weak point with the added straining of the patient at stool, for constipation is often present, might well be a contributing cause and is certainly a factor, in increasing the size of the diverticula.

Having formed, the vast majority of diverticula cause no trouble. They may, however, become filled with dry, hard fecal mate-

rial and suddenly become acutely inflamed The picture then is not unlike the acute appendix. The inflammation may be mild and subside; it may be severe and perforate with resulting peritonitis or abscess formation, or it may so cut off the blood supply as to cause gangrene. In the acute stage, the diverticulum may adhere to some neighboring viscus and perforate into it. The most notable example of this is the bladder fistula thus formed. The fistula may connect with a loop of bowel. I once removed an appendix, the lumen of which was continuous with the lumen of the sigmoid through adherence at its tip; it is probably fair to assume that this appendix became fixed to a small acutely inflamed diverticulum.

The most important result of diverticulosis, however, is the subacute proliferative or chronic inflammation. This process is begun about the fecal-filled diverticulum and progresses slowly. It may be compared to the granuloma which forms around a foreign body, with the added infection of the usual bacteria present in the lower bowel. This deposit of inflammatory tissue may involve a considerable area of the gut, depending on the number of diverticula present, and may grow to considerable size. Grossly it appears either as a thickening of the gut or as a hard tumor mass. It is likely that the former has been at times passed up by the surgeon as an unimportant finding, and the latter has been resected as a malignant growth.

The symptoms of the acute infection are those of a left-sided acute appendicitis, subject to the same wide variation of symptoms as is the acute appendix. The other form gives a more chronic history. There have been digestive disorders of various kinds, pain usually a dull ache in the left lower abdomen, probably there have been one or more acute attacks, constipation is the rule, of increasing severity even to obstruction of the bowel. There is rarely blood in the stool, because the pathology is largely outside the mucous lining of the gut.

The most important physical findings are local tenderness and rigidity, and a palpable mass usually in the left lower abdomen. Sigmoidoscopic examination is of little or no value except to exclude carcinoma. The temperature and leucocyte count depend on the activity of the inflammation; in one having a palpable mass, there is usually a moderate elevation of both.

The diagnosis of the acute condition is rarely accurately made, the symptoms are of appendicitis on the left side, and if transposition of viscera is excluded, diverticulitis should at least be seriously considered. In the chronic form with a palpable mass, carcinoma is the most difficult disease to exclude. X-ray examination may reveal the diverticula and exclude cancer, but often this evidence is not conclusive. The well nourished patient, the absence of blood in the stools, and the negative sigmoidoscopic findings, are usually sufficient to exclude cancer.

The diverticulum with its fecolithic contents may become cut off from the bowel and become a free body in the peritoneal cavity. There are, however, more serious complications. The mass at times so encroaches on the lumen of the gut as to cause obstruction. As has been noted the inflamed diverticulum may form a fistula into a nearby viscus. The most frequent is the bladder fistula which is attended with severe cystitis and passage of gas and feces by urethra. The gravest of all, however, is the growth of cancer. It has been estimated that thirty per cent of cases of diverticulitis with mass formation, have cancer in addition to the inflammatory process.

Medical treatment, depending largely on colonic irrigation and prevention of stasis, is said to give good results in early mild cases. Manifestly in the acute, and in chronic cases with mass formation, surgery offers the only hope of success. The surgical problems are many and varied, and require the most careful judgment. In the acute cases excision and suture or drainage of an abscess, may be all that is necessary or all that can be done. Where there is a fistula, it should be closed by appropriate methods and then the colonic problem taken up. Where resection is to be done, a preliminary colostomy will make the operation safer, and by somewhat relieving the inflammatory process, will reduce the technical difficulties. Where it is possible to mobilize the affected area, the two-stage operation of Mikulicz offers a conservative method of cure, or it may be wise at one stage to resect and suture the gut. Long standing cases may have such extensive pathology as to be beyond surgical relief. This case belongs to this last unfortunate group:

Patient is a man 73 years of age, complaining of left abdominal pain, constipation and loss of weight and strength. He gives a history of numerous attacks of severe abdominal pain with fever, nausea and vomiting. There has been no constipation until recently. During the last two years he has lost weight and strength, has had a dull pain in left lower abdomen, usually relieved by movement of bowels which have gradually become very sluggish. Stools are small caliber, very dry, and have had considerable mucus but no blood. At times the pain has been quite severe and accompanied by fever and vomiting.

The patient was obviously severely ill. The physical examination was not interesting beyond the very evident loss of weight, and the abdomen. Here a mass was palpated in the left lower quadrant, the spleen easily felt, and there was marked tenderness and slight rigidity in both these regions. The laboratory examinations showed a moderate secondary anaemia, rather markedly diminished renal function, essentially normal blood chemistry and negative blood Wassermann. X-ray examination of the gastro-intestinal tract showed a very extensive diverticulosis involving the large bowel from the left side of the transverse colon to the rectum. Sixty-three diverticula were visualized.

The diagnosis was diverticulitis of the colon with inflammatory thickening causing partial obstruction to the bowel.

The patient refused to consider operation. He was advised to follow the palliative treatment outlined above. During the next two months his temperature ran from normal to 101 degrees, and his general condition grew less favorable. At the end of this time the abdomen was explored in one of the large Eastern Clinics, from which I had the following report: "Large mass was found in the upper left quadrant, which was not adherent to the diaphragm, but which was firmly attached to the lateral wall just beneath the costal margin. The lower pole of the spleen and the upper pole of the kidney seemed to be involved in this mass. The mass itself was a little larger than one's fist. The transverse colon was followed into this mass and the descending colon found to emerge from it. The mass was very firm and nodular, and suggested only an infiltrating carcinoma. It was quite obvious that nothing could be done surgically." Two months later he died.

This case, of course, is an extreme example of the results of diverticulitis and complicating cancer.

References.

George, A. W. and Leonard, R. D., Med. Clin. of N. A., 2, 5, March, 1919.
Keefe, J. W., Boston M. & S., 176, 271, 1917.
Chute, A. L., Boston M. & S., 184, 118, 1921.
Mayo, W. J., Wilson & Griffin, Surg., Gyn., Obs., 5, 8, 1907.
Erdmann, J. F., Surg., Gyn., Obs., 26, 207, 1918.
Roberts, Dudley, Surg., Gyn., Obs., 26, 211, 1918.
Black, W. T., Surg., Gyn., Obs., 28, 473, 1919.
Willey, C. H., Brit. Med. Jour., Vol. I., 1920, 631.
Bryan, R. C., Ann., Surg., 63, 352, 1916.
Giffin, H. Z., Jour. A. M. A., 59, 864, 1912.
Mayo, W. J., Jour. A. M. A., 69, 781, 1917.
Gant, S. G., Jour. A. M. A., 77, 1415, 1921.
Powers, Chas. A., Trans. Amer. Surg. Asso., 1912.
O'Callaghan, R., Surg., Gyn., Obs., 33, 679, 1921.
Ranken, F. W. & Judd, E. S., Surg., Gyn., Obs., 35, 510, 1922.
Mayo, W. J., Va. Med. Monthly, 48, 428, 1921.
Hartwell, J. A. & Cecil, R. L., Amer. Jour. Med. Sc., 140, 174, 1910.
Telling, W. H. M. & Gruner, O. C., Brit. Jour. Surg., 4, 1916, 468.

400 *East Franklin Street.*

TORSION OF AN APPENDIX EPIPLOICA SIMULATING AN ATTACK OF ACUTE APPENDICITIS.

By FRANK HELVESTINE, Jr., M. D., University, Va. Department of Surgery, University of Virginia Medical School.

The appendices epiploicae were first described in 1543 by Andre Vesalius. The average anatomical text book of the present day pays very little attention to these structures and the descriptions are unsatisfactory. The following description is taken from Quain's Anatomy:[7]

"The serous coat (of the large intestine) is for the most part similar to that of the small intestine except that, along the colon, it is prolonged into numerous projections, enclosing fat, which are called appendices epiploicae. These appendices vary greatly in size, and in stout individuals may be 4 cm. to 5 cm. long, give off a number of secondary processes and be loaded with fat. On the vermiform appendix, the serous membrane is closely adherent to the subjacent muscular fibers, but two rows of appendices epiploicae, one on each side, project from its mesentery close to the appendix. Occasionally some rudimentary appendices epiploicae are found on the free surface of the vermiform appendix. The epiploic appendages are found along the whole of the colon and are

usually best marked on the transverse and pelvic colon. They are seldom conspicuous on the cecum, and, on the ascending and descending colon are mainly attached to the median and lateral surfaces, while on the transverse colon they spring almost entirely from its posterior surface, being attached between the two longitudinal muscular bands termed taenia mesocolica and taenia libera, and when well developed also from the adjacent part of the transverse colon. On the pelvic colon they often form two somewhat irregular rows situated on each side of the bowel; they gradually become smaller in size and fewer in number towards the end of the pelvic colon, and they are absent from the rectum."

Practically nothing is known of the physiology of the appendices epiploicae. It has been suggested that these structures serve the same protective purpose as the omentum, that they serve as a place of storage for fat; and Robinson[9] has concluded from his experiments that the appendices epiploicae are concerned with the movements of fluid in the large bowel.

Pathological changes of the appendices epiploicae are rare. Hunt[4] in 1919 collected forty-two cases from the literature and added eleven cases from the Mayo Clinic in which one or more of these structures showed a diseased condition. From a review of the cases reported in the literature it appears that the most frequent cause of pathological change in the epiploic appendages is attendant upon some mechanical interference of the blood supply of these bodies. Torsion of the pedicle is the principal etiological factor, but a number of cases have been reported in which the appendices became strangulated in a hernia sac.

Interference with the circulation may be entire or partial. Fat necrosis is the principal degenerative change. Subperitoneal hemorrhagic effusions and gangrene often characterize the process. At times only small ecchymotic areas with dark discoloration of the appendices epiploicae are seen. There may be an extensive inflammatory reaction present, and it is thought that infection following torsion often takes place by direct bacterial invasion from the lumen of the bowel.

In a series of fifty-three cases (forty-two from the literature and eleven cases reported by Hunt) the location of the diseased appendices epiploicae was stated in twenty-nine cases. The pathology occurred on the cecum in six cases, on the transverse colon in two cases, and on the sigmoid colon in twenty-one cases. Torsion within the abdominal cavity has been reported in sixteen cases. and in ten cases torsion occurred within hernial sacs. Intrahernial strangulation was reported in fourteen cases. In twelve cases were found in the free peritoneal cavity foreign bodies which were assumed to be derived from appendices epiploicae which had become separated from the bowel by torsion of their pedicle. Hunt reported a case of intestinal obstruction in which the obstruction was caused by a band formed by an appendix epiploica becoming adherent across the sigmoid.

Three cases of the series of sixteen cases of intra-abdominal torsion were diagnosed as acute appendicitis; two cases were diagnosed as intestinal obstruction; appendicitis and cholecystitis was the diagnosis in two cases; two cases were not diagnosed before operation, and in two cases the condition was an accidental finding at operation. The diagnosis of gall-stones, ovarian disease, tumor of the sigmoid and diverticulitis was made in one case each, respectively. All of the cases in which torsion or incarceration occurred within hernial sacs were diagnosed as incarcerated or strangulated herniae. In the cases of foreign body formation there were usually no symptoms and the condition was found accidentally.

Case Report

Clinical Note: The patient, a white woman, 36 years of age, was admitted to the University of Virginia Hospital, July 4, 1923, complaining of pain in the right lower quadrant. During the past three years the patient had had an occasional slight pain in this region. These attacks were very transitory and aside from the pain there were no other symptoms. The present attack started about twelve hours prior to admission. The patient was awakened during the night with rather sharp pain in the lower abdomen which was most marked in the right lower quadrant. Shortly after awakening she became nauseated and vomited. On admession the patient complained only of pain and tenderness in the appendix region. Examination showed no distention of the abdomen, slight regidity and marked tenderness in the right lower quadrant. Rectal temperature was 100° F., leukocytes 6,200, and examination of the urine negative. With a tentative

diagnosis of acute appendicitis immediate operation was advised.

Operation: (Dr. S. H. Watts). The abdominal cavity was opened through a McBurney incision. The appendix vermiformis showed no evidence of acute inflammation but was bound down by adhesions and converted into a fibrous cord near its tip. Removal was quite difficult and had to be done in a retrograde manner. Attached to the median surface of the cecum about 6 cm. above the ileo-cecal junction there was found a small dark purple gangrenous body. This body measured 2 cm. in length, 1 cm. in breadth and about 3 mm. in thickness. In shape it resembled very much a butter bean. It was attached to the cecum by a short twisted pedicle. This gangrenous appendix epiploica was the only lesion that could be found to account for the patient's acute symptoms.

The following is a brief summary of eight cases of torsion of an appendix epiploica simulating appendicitis, appearing in the literature:

Briggs[1] reports the case of a man 35 years of age, without a previous history of any abdominal complaint, who had a sudden attack of pain in the right lower quadrant, which gradually subsided but increased later in the day. On examination the patient's pulse and temperature were normal. A tender tumor was palpable in the appendix region. On the fifth day after the onset the temperature was 100° F. At operation there presented in the abdominal incision a tumor one and one-half inches long and one inch wide, having the appearance of a hematoma with a peritoneal envelope. It was adherent to the cecum by a narrow twisted pedicle. The appendix vermiformis although normal was removed. The tumor was an appendix epiploica with a twisted pedicle.

Zoeppritz[10] records the case of a man 20 years of age who complained of burning pains in the right epigastrium extending toward the midline. Before examination the patient had had acute epigastric pain and tenderness over McBurney's point. The diagnosis of acute appendicitis or cholecystitis was made. At operation the appendix vermiformis appeared in the incision and showed no pathology. Upon lengthening the incision a brownish-bluish-red mass, the size of a plum, appeared in the wound. From the center of this mass there extended a slightly thickened band of omentum. The removed tumor was an appendix epiploica, of the beginning of the transverse colon, twisted 180.° When the omentum was loosened there was no tendency to untwist.

Pochhammer[6] reports the case of a man, 34 years of age, who had had during the past 18 years repeated attacks of pain in the right lower quadrant which had been diagnosed appendicitis. Just prior to admission to the hospital the patient had had a similar attack of pain without nausea or vomiting. With a diagnosis of appendicitis an operation was performed. There was found in the pelvis a fatty tumor about the size of a hen's egg, bluish-black in color, with its central portion infiltrated with blood. It was evidently an appendix epiploica which had become enlarged by fatty infiltration and the pedicle had become twisted. The appendix vermiformis, although it showed no pathology, was removed.

Kimpton[5] describes the case of an obese man, 42 years of age, who complained of acute pain in the right lower quadrant, accompanied by nausea. On examination there was tenderness and rigidity in the appendix region. With a diagnosis of acute appendicitis operation was undertaken. In the region of the appendix vermiformis there was found a black appendage of fat, which was a twisted appendix epiploica. This appendix epiploica was hemorrhagic and necrotic. It was removed along with the normal appendix vermiformis.

Harrigan[2] reports the case of a man 29 years of age, who two days before examination, had sudden severe pains in the right lower quadrant, which did not radiate. In spite of the use of opiates this pain became progressively worse. Examination was negative except for some slight rigidity and tenderness over McBurney's point. A diagnosis of acute appendicitis was made. At operation the vermiform appendix was found not to be inflamed and abdominal exploration was negative except that on the sigmoid there was an appendix epiploica with a twisted pedicle, which presented evidence of acute inflammation. The appendix epiploica and the appendix vermiformis were removed with complete recovery of the patient.

Hunt[4] records the case of a woman, 29 years of age, who gave a history of having had moderate pain in the right lower quadrant for

a period of seven years. The pain was usually of only a few minutes' duration and never severe enough to cause the patient to stop work. At times there would be a dull ache for a day. During the two months preceding examination there had been moderate digestive disturbances but no attacks. A diagnosis of chronic appendicitis and cholecystitis was made. At operation a chronic adherent appendix and an appendix epiploica, the size of a small pecan, with a twisted pedicle, were removed.

Hartley[3] describes the case of a woman, 35 years of age, who two days prior to admission, began to have pain in the right lower quadrant of the abdomen, which was aggravated by exercise. Tenderness was also noted, by the patient, in this region. Pain persisted and grew steadily worse. There were no gastric symptoms. The patient gave a history of having had slight transient attacks of pain in the right lower quadrant over a period of the past ten months. On examination there was rigidity and tenderness in the right lower quadrant of the abdomen. Temperature 99° F., and pulse 88. With a tentative diagnosis of acute appendicitis, immediate operation was performed. The vermiform appendix was found to be normal and was removed routinely. Further examination revealed the presence of a dark purple colored appendix epiploica attached by a narrow pedicle to the anterior surface of the ascending colon, some distance above the ileo-cecal junction. This body was discoid in shape and its pedicle was twisted fully twice. It was removed. The patient made an uneventful recovery and has had no further trouble.

Robertson[8] reports the case of a young man who gave the history of just recovering from a second attack of appendicitis. There had been four weeks between these two attacks. On each occasion the onset had been sudden with severe pain in the right iliac fossa accompanied by nausea and vomiting. For some weeks the patient had suffered from dyspepsia with much flatulence. On examination, there was a tender spot in the appendix region, and a small hard lump, resembling an inflamed appendix rolled in omentum, could be palpated; abdominal rigidity was slight. At operation the vermiform appendix was found to be normal. About three inches distal to the cecal extremity of the appendix upon the posterior external aspect of the cecum, there was exposed a small plum colored lump, sessile upon the peritoneal coat of the gut. The tumor showed the structure of an appendix epiploica with an inflammatory reaction and recent hemorrhage.

Comment.

Torsion of appendices epiploicae are probably not so rare as the few reports in the literature would indicate. The majority of abdominal operations are performed for appendicitis and the usual operation is done through a small McBurney incision, which permits of little exploration of the abdominal cavity. In a certain number of cases which are operated upon with a diagnosis of appendicitis, slight or no pathological changes are found in the appendix, certainly not sufficient pathology to account for the symptoms of which the patients complain. Yet the appendix is removed and the patients have no further trouble. These cases may very easily have as the cause of the symptoms an appendix epiploica with a twisted pedicle. With gangrene of these bodies, pain subsides and either absorption or calcification results.

In abdominal surgery it is well to keep the appendices epiploicae and their pathology in mind, and, when no gross changes can be demonstrated in the suspected viscera, it is well to explore the colon for disease of these fatty bodies, and not relegate these cases to the class in which there is nothing abnormal found.

References.

1. Briggs, W. A., 1908. Amer. Jour. Med. Sci. CXXXV, 364-870.
2. Harrigan, A. H., 1917. Ann. Surg. LXVI, 467-478.
3. Hartley, J. N. J., 1922. Edinburg Med. Jour. XXVIII, 111.
4. Hunt, V. C., 1919. Ann. Surg. LXIX, 31.
5. Kimpton, A. G., 1915. Boston Med. & Surg. Jour. CLXXII, 752.
6. Pochhammer, C., 1910. Charite Ann., Berl. XXXIV, S494-506.
7. Quain's Anatomy, Vol. II, pt. 2, p. 123.
8. Robertson, G., 1923. Brit. Med. Jour., I, 325.
9. Robinson (cited by Harrigan).
10. Zoeppritz, H., 1908. Deutsch. Ztschr. f. Chir., XCVIII, 141-148.

INSULIN IN COUNTRY PRACTICE.*

By JAMES C. DOUGHTY, M. D., Onancock, Va.

The doctor in general country practice is occasionally called upon to treat diabetes mellitus or its more important complications, acidosis, gangrene and coma. At times, the extreme illness of the patient or an economic reason prevents transferring the case to some hospital with a metabolism department including laboratory technician, dietitian, and the care of an internist versed in insulin administration.

Medical literature has brought to our divided attention well written papers on the treatment of diabetes with insulin, most of them by highly specialized authors, and necessarily in technical terminology. Diabetes requires some technical knowledge; and Eli Lilly & Co., who are accorded the privilege of the large scale production under the trade name "Iletin," have compiled a most concise treatise on its use.

This brief paper is brought to your attention with the hope that some of the apparent mysteries, attending the modern treatment of one of the most miserable human ills, may be solved.

In passing, let us pay tribute to the research workers who have, by a series of brilliant physiologic investigations carried out in the Toronto Laboratories, made an epoch in the history of medicine.

Insulin, the active principle derived from the islands of Langerhans of the pancreas, was discovered by Dr. Frederick Grant Banting, of Toronto, Ontario, and Mr. Charles H. Best, of Maine, who was at that time a student in the department of physiologic chemistry at The University of Toronto. These men were working in the laboratory of Professor J. J. R. Macleod, and finally, after considerable difficulty, Drs. Banting and Collip and Mr. Best produced a preparation sufficiently pure for therapeutic use. Immediately the aid of such renowned clinicians as Campbell, Fletcher, Fitz, Geyelin, Wilder, Williams, Woodyatt, Allen and Joslin, was sought; and these, after sufficient experience with insulin, made prolonged reports.

Iletin (Insulin Lilly) is supplied at present in aqueous solution for hypodermic use only. Given orally it is ineffective. The solution is quite stable and may be preserved at room temperature. No appreciable deterioration has been shown during a period of several months. It is now of uniform composition and since October has been increased 40 per cent in strength. One unit of iletin as supplied by Lilly & Co., previous to October, 1923, was defined as one-third the minimum amount of the extract which on subcutaneous injection into starved 2 kilogram rabbits would lower the blood sugar to the convulsive level, 45 milligrams in 100 c.c., within 2 to 5 hours. The new product bears the "U" label. One unit of iletin usually enables a severe case of diabetes to utilize from 1 to 2 gms. of additional glucose. "The basis for this work was the appreciation by Banting that, upon ligation of the pancreatic ducts, there develop degenerative changes in the acini of the pancreas but not in the islet tissue. Further experiments proved that trypsinogen and its derivatives were antagonistic to the internal secretion of the pancreas; and the failures of other investigators were thus accounted for. The first pancreatic extract used by these investigators was obtained from the atrophied pancreas of the dog after the pancreatic ducts had been ligated for a period of ten weeks. The atrophied pancreas immediately upon removal was extracted in ice-cold Ringer's solution and then purified. On injecting this extract into diabetic dogs it was found that the percentage of sugar in the blood and in the urine was invariably reduced . . ."

"Next, taking advantage of an observation that no enzymes were found in the foetal calf pancreas until after the fifth month, the pancreas from foetal calves was extracted in Ringer's solution and, after purification, injected into diabetic dogs, causing definite reduction in blood and urinary sugar. Finally, a potent extract of islet tissue was obtained from adult beeves' pancreas by abstracting with 95 per cent alcohol immediately after death of the animal, soluble and protein free."*

It is interesting to know that the Nobel Prize in Medicine for 1922 has been awarded to Drs. Banting and Macleod who in turn have shared equally with their colleagues, Dr. Collip, of Alberta University, and Dr. Best, who has recently received the degree, Doctor of Medicine. Each of these men received 10,000 dollars. The Canadian Government has voted

*Read at meeting of Accomac County Medical Society in Onley, December 10, 1923.

*Insulin Treatment of Diabetes, J. D. Willis, M. D., Roanoke, Va., Virginia Medical Monthly, Oct., 1923.

Dr. Banting an annuity of 7,500 dollars to enable him to proceed with his experiments. The University of Toronto has granted him a permanent professorship carrying an additional income of 6,000 dollars. "Even so," says the *Literary Digest*, "he has given the world at the age of thirty much more than it is ever likely to pay him for." He is a confirmed bachelor, highly artistic, being a painter, and judging from the canvasses hanging on the walls of his office, Cathedral doorways are his favorite subjects. He was born on an Ontario farm and reared there, and is further a product of Canadian schools and university. His aged mother has lived to share his glories.

Insulin is not a cure for diabetes. Some clinicians† have expressed a belief in its ability to aid in restoring the lost function of the pancreatic islands, providing a pathologic change has not destroyed the islet tissue. The accepted methods of dietary management of diabetes have not been changed materially by the advent of insulin. A knowledge of proper diet in this disease is still essential to its successful treatment; but, it is no longer necessary to subject a patient to prolonged periods of under-nutrition to render the urine sugar free. The body tissues of a patient at rest need a certain minimum amount of fuel to supply heat and energy; this amount expressed in terms of heat units, calories, varies with the age, sex, height and weight of the individual, and is called the basal caloric requirement. This may be determined with considerable accuracy by means of charts based on the DuBois' calculations; or for practical purposes it may be estimated that an adult with average nutrition will utilize in twenty-four hours, 25 to 30 calories per kilogram of body weight, a kilogram being 2.2 lbs. This necessary fuel must be obtained from the proteins, fats and carbohydrates in the food, or from the body tissues. One gram of protein or carbohydrate will yield 4 calories and one gram of fat will yield 9 calories. Fat burns in the flame of carbohydrate combustion; therefore fats and carbohydrates must be balanced in the diet or a ketosis results with acetone bodies in the blood and a resultant acidosis leading on to coma and death. In the human economy a certain amount of protein is absolutely essential for growth and to replace nitrogenous waste. This amount is usually estimated to be from ¾ to 1 gram for each kilogram of body weight in an adult, and from 1 to 2.5 grams in a child. Diabetics who are not obese may safely take from 2 to 2.5 grams of fat per kilogram body weight. The difference between the total calories required and the number supplied by the protein and fat on the above basis may be supplied as carbohydrate.‡ For example, a 50 kilogram man will require as a basal diet 1,500 calories. 1 gm. protein × 50 × 4 = 200 cal. 2½ gms. fat × 50 × 9 = 1125 cal. Then 1,500—(1,125 + 200) = 175 calories of carbohydrate which can be supplied by 44 gms., thus affording a well balanced ration of C. 44, P. 50, F. 125. There must be a definite ratio between the fatty-acid and the glucose. In Toronto, the Department of Medicine has adopted a formula* for computing diets which is based on two-thirds gram of protein per kilogram of body weight and carbohydrate and fat to yield a fatty-acid—glucose ration of approximately 2—1. The following formula may be used.

Method for Estimating Diabetic Diets

Surface Area Chart (Du Bois)

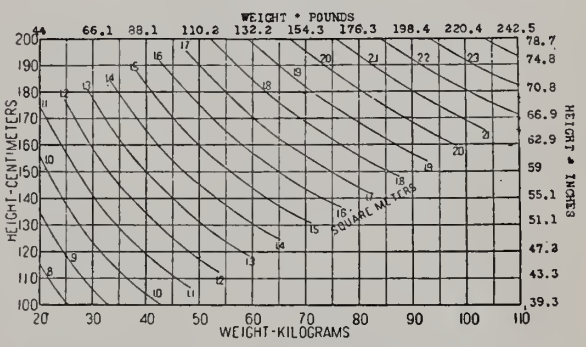


Chart for determining surface area in man in square metres.
Example: Weight 154.3 lb., Height 70.8 in. = 1.88 sq. m.

Caloric Requirement per square metre of body surface (Aub-Du Bois)

AGE	MALES		FEMALES	
Years	Cal. per Hour	Cal. per Day	Hour	Day
10-12	51.5	1236	50	1200
12-14	50	1200	46.5	1116
14-16	46	1104	43	1032
16-18	43	1032	40	960
18-20	41	984	38	912
20-30	39.5	948	37	888
30-40	39.5	948	36.5	876
40-50	38.5	924	36	864
50-60	37.5	900	35	840
60-70	36.5	876	34	816

Formulae for calculating food requirement in grams from Caloric Requirement (M) (W. R. Campbell)

P = 2/3 gm. per Kg. body weight.

$$C = \frac{M - 10P}{30}$$

$$F = \frac{M}{10} - \frac{P}{2}$$

Dept. of Medicine,
University of Toronto

Example—Given a patient, male, 35 years of age, 66.9 inches tall, weight 65 kilograms. Where the lines, kilogram and height, cross

†Drs. A. McPhedran and F. G. Banting. J. A. M. A., June 9, 1923. P. 1726.
Stengall. Virginia Medical Monthly, Oct., 1923. Page 462.
Allen, Prevention of Progressiveness. J. A. M. A. Oct. 20, 1923. P. 1334.

‡Iletin Insulin, Lilly, Handbook, Revised, October 15, 1923.
*Campbell, Canadian Medical Association Journal, July, 1923.

on the Surface Area Chart, find the nearest square meter curved line and follow downward to reading; in this instance it is 1.75 sq. meters. Multiply 1.75 sq. meters by number of calories required per day for male 35 years of age; in this instance 948. Then 1,659 calories is the "Basal Maintenance Diet." Supplying the figures in the formulae of W. R. Campbell, we have—

$$P = \frac{2}{3} \text{ gram per kilo. body wt.....44 grams.}$$

$$C = \frac{M - 10\,P}{30} \text{ or 1,659—470 divided by 30..... 41 grams.}$$

$$F = \frac{M}{10} - \frac{P}{2} - \text{ or 1,659 divided by 10 minus 44 divided by 2.....144 grams.}$$

"A maintenance diet is one on which the individual holds weight, an insufficient diet is one on which he loses weight, and a surplus diet is one on which he gains weight. There need be nothing abstruse in these reckonings."†

DIABETIC DIETARY‡

	Weight of Portion, Gm.	Protein	Fat	Carbohydrate
A. Protein equivalents (6 gm. each):				
Lean meat, poultry, cooked	22	6	3	0
Roast, medium fat	22	6	6	0
Fish, lean (cod, haddock, etc.)	30	6	0	0
fat (salmon, shad, etc.)	30	6	3	0
Oysters, six average	--	6	1	3
Ham, boiled, sliced	30	6	7	0
Bacon	36	6	18	0
Pork sausage	30	6	10	0
Beef soup (not greasy)	150	6	1	1.5
Egg, one	60	6	6	0
Egg white, two	--	6	0	0
yolk, two	--	6	12	0
Cheese, American	20	6	7	0
cottage	30	6	0	1
Casein flour muffin (Joslin) one	--	6	6	0
Calf's foot jelly (with saccharin)	45	6	0	0
Milk, three-fifths glass	150	6	6	7
Almonds, walnuts	30	6	18	5
Brazil nuts	35	6	24	2
Peanuts	25	6	9	5
Pecans	45	6	31	6
B. Carbohydrate equivalent (5 gm. each): Asparagus, cabbage, celery, chard, cauliflower, cucumber, eggplant, grapefruit, greens, leeks, lettuce, okra, radishes, rhubarb, stringbeans, spinach, sprouts, tomato	150	2	0	5
Beets, carrots, mushrooms, onions, squash, turnips	75	1	0	5
Canned lima beans, green peas, parsnips	35	1	0	5
Green lima beans, green corn	25	1	0	5
Orange, one-half, small	75	0	0	5
Lemon juice	50	0	0	5
Blackberries, cranberries, muskmelon, peach, pineapple, strawberries	75	0	0	5
Alligator pear	75	1	15	5
Apricots, cherries, huckleberries, pear, raspberries	30	0	0	5
Apple, banana, grapes, plums, prunes	25	0	0	5
Oatmeal, boiled	45	1	0	5
dry	8	1	0	5
Wheat cereal porridge	30	1	0	5
Macaroni, hominy, boiled, potato, baked, boiled, rice, boiled	25	0.5	0	5
Baked beans, canned	25	2	0.5	5
Bread	9	1	0	5
Cracker	7	0.5	0	5
Olives, green	60	0.5	10	5
Cream, 20 per cent.	150	5	30	5
40 per cent.	150	5	60	5
Milk, one-half glass	120	4	5	5
Wheat flour, 75 per cent. carbohydrate.				
Molasses, 70 per cent. carbohydrate.				
Sugar, 100 per cent carbohydrate.				
C. Portions by which fat may easily be added:				
Butter, 85 per cent. fat (3 pats)	30	0	25	0
Olive oil, lard, etc., 95 to 100 per cent. fat (1 level tablespoonful)	15	0	15	0
Mayonnaise, home-made (1 level tablespoonful)	15	0	15	0
Bacon, cooked	36	6	18	0
Cream, 20 per cent. (1 level tablespoonful)	15	0.5	12	0.5
Cream, 40 per cent. (1 level tablespoonful)	15	0.5	12	0.5
Alligator pear	100	2	20	7
Nuts, olives, etc. (See above).				
D. Miscellaneous (to be added at the physician's discretion):				
These articles may be added to the dietary without allowing their food value: coffee, tea, washed bran, agar-agar, cellulose flour, saccharin, liquid petrolatum (instead of lard), etc. To obtain the total number of calories multiply the total grams of protein by 4, of fat by 9, and of carbohydrate by 4, and add the results. The average daily requirement is 10 to 15 calories per pound (25 to 35 per kilogram).				

The diabetic diet should contain foods rich in vitamins. Think in terms of proteins, fats, carbohydrates, and minerals. Compute the diet in such terms that bread made of whole wheat flour, and whole corn meal can be included; also fruits, fruit-juices, green vegetables, growing plants, eggs, milk, white potato baked in skin, and other base forming foods.

†The Treatment of Diabetes With Insulin. Allen, J. A. M. A., Oct. 20, 1923.

‡Protein and Carbohydrate Equivalents in the Diabetic Dietary. E. M. Ewing, J. A. M. A., Jan. 29, 1921.

In diabetes,* and all infections of the organs of digestion, the tissues need nitrogen, phosphorus, calcium, potassium, iodin, magnesium, and iron; and, in the treatment of the obstinate constipation that often attends non-absorbable food elements are necessary. We should encourage patients to forget that sweets exist; even saccharin is to be omitted; it is a coal-tar product and is of doubtful value. Honey, moderately, may satisfy the craving for sweets; but the status of honey differs in the opinions of different writers. Newburgh and Marsh, and Maignon of Paris, advocate diets with high fat value; but the majority who treat diabetes prefer to follow the low fat regimen and feel on the safe side.

McCollum's formula of the perfect daily diet includes one raw fruit, one uncooked vegetable, two green vegetables, and one quart of milk a day, "to which should be added enough bread, butter and meat to meet the nutritional needs of the body. This diet, if carried out by the American people, would result in an enormous decrease in diabetics, along with a lessened number of cases of intestinal infections."*

Americans are an intoxicated race from acid-forming foods.

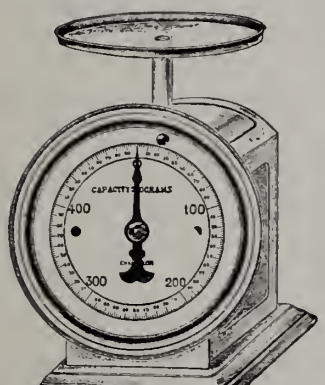


Figure 1—CHATILLON SCALE. These scales are finished in White Enamel with decorations. Dial is silvered finish on which the graduations and numerals appear in black. Capacity 500x2 gr.

The Chatillon Scale† (Fig. 1) with the rotary dial is the most convenient for daily use of the patient. It is attractively gotten up, is enameled white and presents a good appearance beside the plate at table.

The remarkable lowering of blood sugar by insulin makes it necessary that extreme caution be taken in its administration. It is best given fifteen to thirty minutes before a meal, either once, twice or three times daily, according to the severity of the disease. Frequent blood sugar estimations must be made in order to intelligently control the dosage. There is great danger in reducing the blood sugar below the low normal, 80 milligrams in 100 c.c. To collect a blood sugar specimen use the ordinary intravenous technic, be careful to let needle cool, and use an intravenous needle with a good size lumen. Put into a clean, preferably sterile, 4 inch test-tube, 1 c.c. of a saturated solution of potassium oxalate; to this add 4 c.c. of blood; cork test-tube, agitate, seal, label, pack in mailing case and mail, first-class, to the nearest laboratory doing blood chemistry. The laboratory technician will mail the report promptly; and the findings may be expressed in decimal fractions. For instance, normal blood sugar runs from 0.08 to 0.10. For convenience you may think in terms of per cent, but most writers prefer to express blood findings as so many milligrams in 100 c.c. of blood; therefore, 8 per cent or ten per cent is read 80 milligrams in 100 c.c. of blood or 100 milligrams in 100 c.c. of blood. Collect specimen before patient's breakfast.

"The extent to which the blood sugar can be raised in the diabetic person varies somewhat with different individuals, but it may be accepted that the maximum concentration which can be present in the blood without the occurrence of glycosuria is 0.18, 180 milligrams in 100 c.c. In the normal individual sugar will not appear in the urine by feeding with an excess of glucose."

"The maximum value of 0.18 is known as the renal threshold value for sugar and represents the concentration below which no sugar is excreted with the urine. One may infrequently encounter cases presenting a low renal threshold and this condition is known as renal glycosuria."

"From what has been said it is evident that when glycosuria occurs in diabetes the blood sugar must be more than 0.18. When it goes to a slightly lower level, then the glycosuria at once ceases. In some diabetic patients, however, and more especially in elderly individuals, the renal threshold value for sugar may be considerably raised so that even 0.3, 300 mgm. in 100 c.c., or more sugar, may be present in the blood without glycosuria. Whenever the blood sugar goes as low as 0.07, 70 mgm. in 100 c. c., definite symptoms of hypoglycemia may appear, and should the blood sugar reach as low as 0.03, 30 mgm. in 100 c.c., death will occur."‡

*Seale Harris, Virginia Medical Monthly, January, 1924. Page 677.

†John C. Chatillon & Sons, New York City.

‡Owens—Insulin. United States Naval Medical Bulletin, Feb., 1924.

The outward manifestations of lowered blood sugar below normal, or hypoglycemia, are weakness, sweating, nervousness, restlessness, inward trembling, pallor or flushing of the face, increased pulse rate (of diagnostic value in children), anxiety, vertigo, aphasia, delirium, confusion, convulsions, collapse, low blood sugar, low temperature, unconsciousness and death.

The antidote is carbohydrate given in some form and in the early stages it makes little difference what kind of carbohydrate is given. At the Toronto Clinic patients carry Quaker molasses candy in their pockets. Usually, 10 gms. of glucose, corn syrup, in 50 c.c. of orange juice by mouth is preferred. Sometimes it is necessary to repeat this dose in fifteen minutes. In case of unconsciousness, glucose diluted with water may be administered by lavage tube; adrenalin chloride 5—10—or 15 minims hypodermically, and as a last resort, dextrose solution 50 per cent sterile must be given intravenously.

A few factors involved in the production of hypoglycemia are increase of natural tolerance of a diabetic under insulin treatment; summation of insulin when doses are maximal and given too near together in point of time; administration of insulin too long before a meal; failure of food absorption, as for example, vomiting, diarrhoea and delayed digestion. Finally, exercise which may increase glucose utilization.

Treatment of Acidosis, Gangrene and Coma.

Allen, in a remarkably able paper* on diabetes read before the June 1923, session of The American Medical Association in San Francisco, states that in any case of existing or impending coma he takes a blood sample and injects 25 units of insulin into the vein before the needle is withdrawn. An additional 25 or 50 units is immediately injected subcutaneously. Further injections are then given subcutaneously every one, two or three hours, according to clinical and laboratory indications. The doses should be heroic. Less than 100 units for the first day is seldom advisable in any dangerous coma case. No food is given except carbohydrate. Fruit drinks are most convenient for supplying fluid, and additions of glucose or sometimes starch are allowed more liberally than before, so as to make a total of from 100 to 200 gms. of carbohydrate in the first twenty-four hours. No matter what the hyperglycemia in the beginning, push this glucose supply, because it increases glucose combustion with a given insulin supply, and thus aids in getting rid of acetone; also it furnishes a safeguard against hypoglycemia with high insulin dosage.

Further, Allen says: "We have observed benefit from moderate doses of sodium bicarbonate, perhaps from 10 to 40 gms. in twenty-four hours; given by mouth, if possible, or by rectum, vein or hypodermoclysis if there is persistent vomiting. Guard against alkalosis which may result from the rapid clearing up of acetone bodies in the blood."

"Push fluids—plain or carbonated water, soup, coffee, saline solution by rectum—in some manner 4 liters in twenty-four hours. Catharsis, gastric lavage, bed rest, warmth, cardiac stimulation and other measures are used as indicated, but are of minor importance."

"Statistical reports are governed largely by the standard for distinguishing coma from precoma." Allen's published series comprising 9 coma cases, show 4 recoveries and 5 deaths. In conclusion, he says, "On the whole, the benefits of insulin in coma and precoma cases are miraculous."

For the diagnosis of diabetic coma one would do well to read the splendid paper† by Howard F. Root, M. D., Boston.

Local Infections—"Local abscesses, middle ear and mastoid infections, and gangrene of the feet have terminated favorably, except an occasional death from gangrene of both feet with septicemia. Superficial gangrene can be healed without operation; but involvement of bones and tendons requires amputation, usually. The powerful control of sugar and acetone by insulin hurries healing."

I do not think that we as general practitioners in the country, without adequate laboratory facilities and competent nursing, should attempt to treat with insulin all cases of diabetes mellitus that come under our care. Many authorities* on diabetes have stated that a patient who becomes sugar free when receiving a diet calculated according to his basal requirement is not at present considered a sufficiently severe case for insulin treatment. Insulin dosage needs supervision and limitation; but, its use can be taught the general practi-

*Journal A. M. A. Oct. 20, 1923.

† Journal A. M. A. Dec. 1, 1923. Page 1847.

*Drs. A. McPhedran and F. G. Banting, Toronto. J. A. M. A. June 9, 1923.

tioner.† Given the case with coma, however, isolated in our rural sections, the insulin should be taken to the patient rather than the patient to the insulin.‡ The proper handling of a case is tedious. After computing the diet one must be prepared to remain with the patient from two to three hours each day during the time that tolerance is being established. We can certainly keep on hand an emergency supply of iletin (Insulin Lilly) and familiarize ourselves with the technic that takes longer to get than Dr. Joslin's allotted two or three hours.§ One can gain the knowledge necessary for diabetes by studying the medical journals. Whenever an opportunity presents, attend a clinic; but, if you are too busy to get away, carry some good paper on insulin as a hand book. Start your case on the smallest possible dose, watch the urine, take an occassional blood sugar and you will be gratified with the results. Thus we shall soon be in a position to meet acidosis and coma as we now meet diphtheria and tetanus.

In closing, one case is brought to your attention, because it was fraught with so many seeming impossibilities, a colored patient who lives in a two room cabin five miles from my office. Her only nurse was a daughter thirteen years old; yet, this child was taught to weigh food on a scale as shown in Fig. 1, the menus reckoned in calories by the physician. She soon learned to apprehend hypoglycemia, give the antidote, do a qualitative urinalysis, test for diacetic acid, collect and measure twenty-four-hour specimens, and finally to think in terms of proteins, fats and carbohydrates. An older sister helped with the cooking and an aged father looked after the patient at night.

It was not possible to do a sugar tolerance* test on this case because of the distance from the laboratory. Neither were quantitative tests for sugar in the urine made.° I am indebted to Dr. S. W. Budd, Richmond, Va., who made the blood sugar estimations, gratis, on this patient.

†Dr. E. P. Joslin, Boston. J. A. M. A. June 9, 1923.

‡The Treatment of Diabetes With Diet and Insulin. Dr. E. P. Joslin, Boston. Va. Medical Monthly, Jan., 1924.

§J. A. M. A. June 9, 1923. Page 1726.

*Sugar Tolerance Testing, Drs. R. A. Kern and Leon Jonas, Philadelphia. For each kilogram of body weight, 1.75 gm. of gluscose, is given, dissolved in 2.5 c.c. of water per gram of glucose; the blood sugar being estimated before the glucose meal and at hourly intervals thereafter. J. A. M. A. Oct. 27, 1923.

°Quantitative Test for Sugar in Urine.—Barclay. J. A. H. A. Jan. 12, 1924.

Report of Case.

History.—S. S.,* aged 53, colored, female, with a history of diabetes of at least eight years' standing. Began with typical symptoms. Past history negative. Family history negative. Present illness dates to three weeks ago when patient cut her little toe on right foot while paring a corn.

Examination.—First seen October 29, 1923. Physical examination revealed fairly well nourished individual. No apparent signs of coma. The breath did not smell of acetone. Breathing uniform on both sides of chest. Heart and lungs negative. Blood pressure 150/60. Pulse regular, of moderate tension, temperature and respiration normal. An area of gangrene was present on dorsum of right foot, moist and ulcerated, and involved tissues down to tendons; about 4 inches long and a mean breadth of 2 inches. The second, third and fourth toes were gangrenous, dry, and at their base a slough had occurred that threatened spontaneous amputation. Evidently, a cellulitis had intervened between the cutting of the corn and the present state. The odor was horrible; and the patient was in great pain. She was unable to sleep, had lost thirst and appetite, was voiding moderate amount of urine heavily laden with sugar; acetone and diacetic acid negative; albumin negative. Blood sugar 300 milligrams in 100 c.c.; Wassermann reaction negative. Height 64 inches. Weight 50 kilograms. Bowels constipated. No nausea.

Treatment.—A diet of 1,500 calories was determined upon, and the Eli Lilly Handbook used as a guide. Protein 200 cal. Fat 1,125 cal. Carbohydrate 175 cal., in twenty-four hours and divided by three meals. After sterilizing the site of injection (lower left inguinal) with tincture of iodine, she was given 2 units of U-10 Iletin hypodermically in the subcutaneous tissue. The doses each day were increased; and each dose given from one-half hour to twenty minutes before the noon meal, one dose daily, because of the distance from my office and the time required at bedside following each administration.

October 30, 2 units U-10, diet 1,500 calories. All specimens urine positive for sugar.

October 31, 4 units U-10, diet 1,500 calories. All specimens urine positive for sugar.

November 1, 6 units U-10, diet 1,500 calories. All specimens urine positive for sugar.

*Referred by Dr. John W. Robertson, Onancock, Va.

November 2, 10 units U-10, diet 1,500 calories. All specimens urine positive for sugar.

November 3, 12 units U-10, diet 1,500 calories. All specimens urine positive for sugar.

Two hours following this dose a slight reaction occurred in the form of stupor, drowsiness, nervousness, and anxiety of patient and doctor. We were looking for something to happen; and the severity of symptoms may have been a bit overdrawn. 50 c.c. orange juice and 10 gm. glucose syrup, repeated in five minutes, promptly aroused her. All specimens urine following, that day, were sugar free.

November 4, 8 units U-10, diet 1,500 calories. All specimens urine sugar free.

November 4, Blood sugar 200 milligrams in 100 c.c. Acetone and diacetic acid negative.

November 5, 8 units U-10, diet 1,000 calories. All specimens urine sugar free.

Diet reduced in calories, because patient complained of getting too much food. There was a desire to use less iletin, also.

November 6, 8 units U-10, diet 1,000 calories. All specimens urine positive for sugar.

November 8, 9 units U-10, diet 1,000 calories. All specimens urine positive for sugar.

November 9, 10 units U-10, diet 1,000 calories. All specimens urine positive for sugar.

Gangrene had started to heal: line of demarcation was forming.

November 11, 10 units U-10, diet 1,000 calories. All specimens urine sugar free.

November 13, 5 units U-10, diet 1,000 calories. All specimens urine sugar free.

Pain has caused little discomfort. "Slept well and felt well inside."

November 15, 5 units U-20, diet 1,000 calories. All specimens urine sugar free.

November 18, 2½ units U-20, diet 1,000 calories. All specimens urine sugar free.

November 20, 2½ units U-20, diet 1,000 calories. All specimens urine sugar free.

Twenty-four-hour specimen urine—A. M. to P. M. 900 c.c. P. M. to A. M. 750 c.c. Specific gravity 1,025, amber, acid. Sugar negative.

Albumin negative. Acetone and diacetic acid negative.

November 23, 2½ units U-20, diet 1,000 calories. All specimens urine sugar free.

November 23, Blood sugar 160 milligrams in 100 c.c.

November 27, 2½ units U-20, diet 1,500 calories. All specimens urine sugar free.

Patient not seen for one week. Iletin discontinued.

December 10, Blood sugar 100 milligrams in 100 c.c. Sugar free.

January 8, 1924. Patient able to be about on foot. Sugar free.

The gangrene was treated locally with Dakin's solution; hot packs about foot were used early in treatment.

Carbon dioxide combining power of the blood was not determined in this case. Banting† refers to it as being useful for a metabolic study of the disease, but not necessary for the actual clinical treatment.

February 22, 1924. Dorsum of foot healed. Toes show signs of sloughing; good line of demarcation at their base. Diet 1,500 calories. Sugar free. Up and about the house with cane.

There has been no attempt at originality in this paper that should be called "Gleanings from Important Reports on the Use of Insulin."

In order to add anything worth while to the great bulk of accumulated knowledge, one must have had at least one hundred clinical cases. This paper was written with the hope that my fellow practitioners in Accomac County might be saved the time required for reviewing the literature on the subject to date.

In the bibliography some dates appear later than December 10; but the authors have brought to our attention material that could not be omitted.

"*Wayside.*"

SPONTANEOUS PYOPNEUMOTHORAX COMPLICATING A CASE OF LOBAR PNEUMONIA.*

By BASIL B. JONES, M. D., Richmond, Virginia.

Spontaneous pyopneumothorax is a very rare complication of lobar pneumonia. Nothnagel, in his System of Medicine, published in 1904, does not mention this condition as a complication of lobar pneumonia. An investigation of the Index Medicus from 1904 to 1922, under the heading of pyopneumothorax, did not reveal any case exactly corresponding to the one reported here. I have been unable to find any reference to spontaneous pyopneumo-

†Further Clinical Experience With Insulin. F. G. Banting, W. R. Campbell and A. A. Fletcher. British Medical Journal, Jan. 6, 1923.

*From Medical Service, Children's Hospital, Los Angeles, California.

(1)Monatschrift F. Kinderheilkunde, Dec., 1922, 24. No. 3.

thorax as a complication of lobar pneumonia, in Nelson's Living Medicine or in Holt's Diseases of Infancy and Childhood published in 1919. Garrod, Batten and Thursfield in their book, Diseases of Children, published in 1913, mention a case of broncho-pneumonia reported by Alice E. Sanderson, which developed a spontaneous pyopneumothorax. This case showed areas of softening and breaking down of the lung tissue due to a pneumococcus infection. Schonfeldt[1] has recently reported four cases of influenzal pneumonia complicated by spontaneous pyopneumothorax. Two of these cases were caused by perforation of an abscess, one by rupture of an emphysematous bubble. Since spontaneous pyopneumothorax is obviously such a rare complication of lobar pneumonia, the following case seems worthy of reporting.

Baby, L. S., age 17 months, the only child of healthy parents, had never been ill before the present illness, with the exception of a slight cold. The present trouble started as a coryza which continued for three days and the child was not really ill until the fourth day. The afternoon of the fourth day the temperature rose rather suddenly to 104.4.° Examination at that time did not reveal any pneumonic involvement but did show reddened drums and a pharyngitis. Otherwise the examination was not remarkable. The next morning the temperature was 105,° the child had a grunting respiration, a few rales in the right lower lobe, but no demonstrable dulness. It was not until the next day, January 12th, that consolidation with fine rales appeared in the left lower lobe. The next morning the left upper lobe also showed definite involvement, and the picture at that time was typical of lobar pneumonia involving the entire left lung. Dulness, slightly diminished bronchial breathing, and a few fine rales were the findings recorded. Careful percussion of the right border of cardiac dulness was done and measurements were taken to serve as a standard for future observations. From this time until January 16th, six days after the sudden rise in temperature, the baby ran a course typical of lobar pneumonia. The temperature varied between 104° and 105,° the respiration between 50 and 60, and the pulse averaged about 140. The morning of the 16th the temperature was only 102° and the baby seemed better. Physical examination suggested slight clearing of the left lower lobe, and it was assumed that the continuation of symptoms was due to activity in the left upper lobe. That night the baby suddenly developed alarming symptoms, she became very dyspnoeic, seemed to be very uneasy, became rapidly distended, the pulse became very rapid and thready in character, and, except for the elevation of temperature, she presented a true picture of shock. Physical examination the following morning showed the child to be in poor condition. The temperature was 103.8,° there was extreme dyspnoea with cyanosis, a very weak pulse and a badly distended abdomen. The striking feature of the examination was the complete alteration of the lung findings. The entire left chest gave a rather tense tympanitic note on percussion, breath sounds were almost absent and what sounds were heard had a distinct amphoric character. The heart and large vessels were pushed at least two centimeters to the right. These findings naturally permitted but one interpretation and the parents were advised that the child had developed a spontaneous pneumothorax and that pus would probably form in a short time. The baby was removed to the Children's Hospital for X-ray examination and more careful observation. A picture was taken at the time of admission and from this picture the following report was made by Dr. W. B. Bowman: "A large accumulation of fluid or pus in the left pleural cavity. The heart and aorta are pushed to the right. Patient has a collapsed lung on the left with a large pneumothorax. The accumulation of air on the left side has prevented the heart and aorta from returning to the normal position. Right lung shows some emphysema."

Shortly after this picture was taken a needle was inserted into the left side of the chest and, simply by changing the direction of the needle, pus or air could be withdrawn at will. The pus was rather thin and of a chocolate color due to the admixture of blood. From this pus staphylococcus aureus only was grown. Owing to the poor condition of the patient any further operative procedure was deferred until the next day. January 17th, the last day of the illness, a rubber catheter was inserted into the left side of the chest by Dr. G. L. Chaffin. This operation was done by the so-called closed method and local anaesthesia only was used. So far as could be seen there

was no change in the patient's condition following this operation and that afternoon the patient died. An autopsy was done by Drs. M. E. Bettin and C. W. Bonynge and the following report was made:

"Body of well developed and well nourished female infant. Drainage tube in 7th left interspace in mid-axillary line. Abdominal cavity—Liver showed some cloudy swelling. Spleen not enlarged, not septic. Stomach, intestines, pancreas negative. Kidneys show some cloudy swelling. Mesenteric lymph nodes slightly enlarged.

Pleural cavity—Lungs and heart removed in toto. Right lung markedly emphysematous. Right pleura negative. Left pleura covered over with thick fibrinous exudate, in places 1 cm. thick. Left lung collapsed with an anterior border only 2 cm. in thickness. Lung tissue solid. Posteriorly, just below the hilus and on the outer aspect of the lung is a rupture 1 cm. in length. Near this rupture are several punctate areas. Section of this portion of the lung shows one large abscess with openings into a bronchus and into the pleural cavity. There are several smaller abscesses in the vicinity.

Microscopical examination of sections from this portion of the lung show typical abscess formation—Fibrin threads, in the meshes of which are numerous leucocytes and necrotic cells. Weigert's stain shows only isolated cocci. In the area about the abscess the alveoli are filled with fibrin, a few leucocytes and epithelial cells. Microscopical examination of sections taken from the left upper lobe show that part of the lung to be in the stage of red hepatization, i. e., alveoli filled with fibrin, numerous red cells and a few leucocytes.

Photograph of lungs removed post-mortem. Note collapse of lung and heavy deposit of fibrin. Arrow points to rupture.

Heart and pericardium negative. Heart valves negative.

Anatomic diagnosis:

1. Pyopneumothorax, collapsed left lung.
2. Lobar pneumonia of left lung with abscess formation, and rupture of an abscess into a bronchus and the pleural cavity.
3. Emphysema of right lung.
4. Cloudy swelling of liver and kidneys.

Cause of death—Lobar pneumonia left lung, with abscess formation. Pyopneumothorax."

Comment—This case is of interest from several standpoints. First because of the extreme rarity of pyopneumothorax as a complication of lobar pneumonia. The paucity of literature on this subject is significant in this respect. Second, the age of the patient. Pyopneumothorax from any cause is an extremely rare finding before the third year of life. Third, from the standpoint of pathogenesis. Clinically and also from the anatomical appearance, the primary disease was lobar pneumonia. Further studies post mortem, however, suggested that the etiologic agent was staphylococcus aureus and not one of the pneumococci. Certain cases of pneumonia anatomically lobar in type, are known to be due to staphylococci. No organisms resembling pneumococci were found in this case, even in sections taken from the upper lobe where the pneumonia was in the stage of red hepatization. Staphylococci are notorious for their tendency to form abscesses, and in this case the fatal complication resulted from the rupture of a staphylococcic abscess. Fourth, from the standpoint of symptomatology and physical findings. When this abscess ruptured, three factors at least must have become operative, the shock incident to the tearing of the pleura, the strain on the circulation due to the collapse of the lung and the sudden displacement of the heart, and the toxaemia from the widespread pleural infection. The urgency of the patient's symptoms showed that some severe complication must have taken place suddenly, and the physical examination left little doubt as to what this complication was. To recapitulate the changed findings in brief: The dulness on percussion was replaced by a tense tympany best explained by air under pressure. The marked diminution of the breath sounds could adequately be explained on the same basis. The amphoric character of the breath sounds with a sense of nearness

and intensification of the voice sounds, especially on inspiration, were very suggestive of an opening between a bronchus and the pleural cavity. The marked displacement of the heart and the presence of the "coin test" further confirmed the diagnosis. The final points of interest to be discussed here are the subsequent course of the case and some of the anatomic findings post mortem. Within twelve hours after the rupture occurred, an appreciable collection of fluid had formed. The X-ray indicated this and the physical examination showed a shifting dulness in the left chest in addition to the other findings. Six ounces of a bloody purulent fluid were withdrawn and several syringes of air, the patient being in a prone position. Post mortem, the most interesting and instructive finding, except of course the confirmation of the clinical diagnosis, was the marked out pouring of fibrin which presumably had formed after the rupture of the lung, two and a half days previously. This fibrin, in places was a cm. in thickness.

Medical Arts Building.

TRAUMATIC DISPLACEMENTS OF THE UTERUS.*

By J. M. ROPP, M. D., Roanoke, Va.

The rapid and wonderful industrial development of the country during the past twenty-five years has been accompanied by an ever increasing number of medico-legal and medico-economic problems, the solution of which has depended primarily on the assistance of the leaders of the medical profession.

Fortunately, the progress of modern medicine has kept well in advance of industrial development, thus enabling the medical profession at all times to meet and supply the medico-legal as well as all other demands made upon it by the industrial world. The medical profession has been much more intimately associated with industrial development than the majority of the medical profession are aware of.

The railway companies and industrial corporations were quick to see the danger, and the futility as well as the great financial waste, of leaving the solution of their medico-legal problems to the unscrupulous lawyer and the equally if not more unscrupulous medical expert witness, as had been the case, and early turned to the medical profession for assistance in the solution of practically all of their medico-legal controversies. And at the present time, all State and privately owned insurance companies and industrial commissions responsible for the payment of these claims against the railway and industrial corporations are seeking facts concerning these problems from the medical profession.

The group of medico-legal entities, the result of personal injury cases, that have engaged the attention of the courts of the country and the claim departments of the railway companies and industrial corporations for the past twenty-five years have undergone many changes during that time. Many of those that were once so frequent, so popular and so profitable to both the claimant and his lawyer, have disappeared entirely from the medico-legal skies and other equally, if not more, difficult ones have from time to time taken their places. Such was the fate of railway spine once so frequent and so popular. Traumatic visceroptoses of various kinds, which began to appear about twenty years ago and for some years were so frequently made the basis of personal injury claims, were displaced in frequency and popularity by traumatic displacements of the kidney, which soon gave place to coccygodynia. These and many others have almost if not entirely disappeared and are at the present time rarely if ever made the basis of personal injury claims.

The fact that these claims could not withstand the light of scientific knowledge, caused the courts to frown upon them, and they consequently became less profitable to the claimant and his attorney, and gradually fell into financial disrepute and went out of style, as it were.

Among the more recent arrivals in this field I will only mention three, viz., traumatic hernia, traumatic displacements of the uterus, and sacro-iliac separations, as these three seem to be at the present time the most popular diagnoses with many claimants and their attorneys. These are all three very difficult problems and have been the subject of careful and thorough investigations by the leading gynaecologists and railway surgeons of the country in the effort to clear up these threatening clouds on our medico-legal horizon, and notwithstanding the fact that these investigations have borne much fruit, they are yet very far from a satisfactory solution.

*Read at the meeting of the Association of Surgeons of the N. & W. Railway, at Cincinnati, Ohio, September 12, 1923.

Of all the medico-legal problems, the result of accident cases, that have ever come before the court of the country or engaged the attention of the claim departments of the railway companies, none have ever presented greater difficulties in the way of a just and satisfactory settlement than those arising from alleged traumatic displacements of the uterus. This is particularly so with the railway and street railway companies, handling, as they do, the public accident cases, all of which are tried in court before juries—unless settled or compromised before reaching this stage. Industrial corporations have much less trouble with these cases as they are all settled by industrial commissions, and this fact alone will explain why the public utility corporations are so frequently the subject of suits for this alleged injury.

The great difficulty encountered in the effort to convince a jury of laymen of the acknowledged scientific facts in the production of this condition has only too often demonstrated the fact that the settlement of these claims in court is not always a matter of scientific knowledge, but of the wisdom of twelve good men and true, who determine them. This fact has forced the claim departments of the railway companies to settle the great majority of these claims (regardless of their merits) out of court, realizing that this is by far the more economical way of disposing of them. This of course should not be the case.

I may say, in presenting this paper, that I have nothing original to offer, but am merely presenting the views of the leading gynaecologists and railway and industrial surgeons of the country with the hope that a careful study of the results of their experience and observations will help us in our efforts to separate the true from the false claims. At the same time I wish to impress the great importance of a careful and thorough examination of all these cases on our local surgeons and the general practitioner, and also to remind them of the tremendous responsibility one assumes when he informs the claimant that traumatism might have been an etiological factor in the production of her displacement; for it is a well-known fact that, when the claimant's lawyer can get the surgeon to admit that while traumatism had nothing whatever to do with the production of the claimant's displacement, yet it is possible for traumatism to produce a similar condition, he has practically won his case regardless of its merits.

By being careful in the examination of the claimant, frank and positive in our statements to them, many of these unjust claims may be avoided, or prevented, thereby saving the railway companies much unnecessary annoyance, and the payment of many of these unfair and unjust claims. Medico-legal prophylaxis, in my humble opinion, is worth a great deal more in these matters than medico-legal therapeutics. It is here that the truth of the old adage "an ounce of prevention is worth a pound of cure" is most clearly demonstrated. The vast majority of these claims are the result of carelessness on the part of the general practitioner who first examined the claimant, as he either failed to make a thorough examination of the claimant or did not realize the important medico-legal aspect of the case.

When these cases arise, the woman is not necessarily a malingerer, as she may have implicit confidence in the physician who examined her, and at the same time may have been utterly ignorant of the fact that she had been the subject of uterine displacement, possibly for years, as it is a well-known fact that many women have displaced uteri that are symptomless until sometime subsequent to a slight or insignificant injury, she is examined by a physician who finds a displacement and informs her of the fact. She immediately attributes her condition to the alleged injury and, unfortunately, her physician either innocently or, as it sometimes happens, purposely agrees with her. The usual history now is that the woman continues to worry and dwell mentally upon the matter until a lawyer is consulted and a suit results. Theses cases particularly mean "still waters and green pastures" for unscrupulous members of the legal profession.

While so far the Norfolk and Western Railway Company has had but few cases of this kind to contend with, many railway and street railway companies and insurance companies report that it is a very frequent cause of personal injury claims and, at the same time, among their most difficult to handle. One of the largest street railway companies in the country reported that it had over 500 cases during the past ten years; another street railway company reported 100 cases during the same period. Chief surgeons of many railroads report it as being a very frequent cause

of claims. Insurance companies state that traumatic displacement of the uterus is a frequent cause of personal injury claims and one of their most difficult ones to settle. One insurance company alone reported that in the year of 1921 it had paid approximately $20,000.00 in the settlement of five claims for alleged traumatic displacement of the uterus.

These figures can but convince us of the fact that this is a medico-legal problem of great importance, and one that demands our serious consideration.

Before taking up the causes of uterine displacements and the question of whether or not traumatism is ever an etiological factor in their production, let us look carefully into the anatomical situation in the normal pelvic cavity. By so doing it will greatly help us to understand the effects of traumatism with reference to uterine displacements.

The uterus is a small pear-shaped organ slightly flattened antero-posteriorly and in the adult female measures about one and one-half to two inches in length and weighs normally about two ounces. Its cervical part is embedded in the pelvic floor, the pelvic fascia and the levator ani muscle making up the principal part of this strong pelvic diaphragm.

The body of the uterus is suspended in the pelvic cavity by the broad ligaments which are greatly strengthened and reinforced below by the utero-sacral ligaments, making a strong suspension bridge arrangement. It is protected in front by the bladder, above and behind by the intestines. All of these structures are surrounded by a strong bony framework, the pelvis.

When a woman is standing or sitting upright, the uterus lies in practically a horizontal position, its anterior wall in contact with the bladder. This position of the uterus is, however, not a fixed one as, owing to the requirements of childbearing, the organ is necessarily mobile. Pressing as it does on the posterior wall of the bladder, its position is continually changing in an antero-posterior plane. accommodating itself automatically with the varying size of the bladder.

Neither is the level of the uterus a fixed one as, under the influence of strong abdominal pressure, such as results from straining, the elastic supports of the uterus allow a certain amount of descent in the direction of the pelvic outlet.

The uterus, notwithstanding its remarkable mobility, nevertheless, under normal conditions, returns to its normal position after temporary displacements, such as result from pregnancy, forcible manipulations, severe straining, or any cause that does not interfere with the elasticity of its supports, or its inherent muscular structure. The readiness with which the uterus returns to its normal position after the external os has been pulled down until it is exposed at the vulva, in order that the cervix may be dilated or a curettage done, is little short of marvelous.

Dr. Harry E. Mock states that he has in many cases, just prior to operation, purposely endeavored to pull the uterus down and push it backward before opening the abdomen, and found that in the majority of cases it was in its normal position when the abdomen was opened, while on the other hand, in cases of existing retro-displacements, even though the fundus was pushed forward before operation, on entering the abdomen the uterus was found to have returned to its former retro-displaced position.

We have seen that the uterus is maintained in its forward or horizontal position by three factors. viz., (1) The proper tonicity of its anatomic supports; (2) The elasticity of its musculature, and (3) By the intra-abdominal pressure which serves to keep its anterior wall in contact with the bladder. It must follow then that anything that interferes with any one or all of these factors must constitute the sole causes of uterine displacements.

We find among those interfering with the first factor, lacerations of the pelvic floor, relaxed abdominal walls, and relaxed utero-sacral and broad ligaments; with the second, subinvolution following childbirth, tumors and inflammatory changes increasing the size and weight of the uterus, and inflammatory adhesions in the surrounding structures; and with the last, increased intra-abdominal pressure from tumors adjacent to the uterus.

In this connection the fact must not be lost sight of that a certain per cent of women have retroverted uteri that produce no symptoms and they are unaware of their condition, which should be considered normal with them.

In considering the causes of uterine displacements many of the authorities mention traumatism as a possible cause but, when scrutinized carefully, one finds that they all have ref-

erence to that rare condition known as acute temporary displacements and that none of the authorities states that permanent uterine displacements are ever the result of traumatism.

Kelly mentions injuries as a cause of acute retro-displacements, such as violent exercise, falls, and lifting heavy weights while the bladder is full, all accompanied by acute symptoms such as were never experienced before and demanding immediate relief. He further states that in all recent cases, the uterus continues to remain in its normal position after reposition, no further treatment being needed.

Dr. Henry Lewis states that any sudden increase in intra-abdominal pressure because of traumatism, in a woman whose pelvic floor was already weakened, might cause the contents of the pelvis to be forced nearer the outlet, thus merely aggravating a pre-existing condition.

Hart and Barbour state that a sudden or violent blow might be the cause of uterine displacement, but that it would be exceedingly difficult to establish.

Graves says that it should be noted that the relaxation of the pelvic supports with permanent retroversion is not the result of falls or jars for, in a woman with a normal pelvis, nature has provided for all accidents of this kind.

Unless a woman has a very full bladder, the sudden increase of intra-abdominal pressure serves only to force the uterus into its normal position. If the bladder is full, it is conceivable that the uterus might be forced backward by the intestines, entering the utero-vesical space. Unless the force is great enough to cause actual destruction of the tissues, the natural elasticity of the uterus and its supports causes it to return immediately to its normal position. It was formerly taught that various forms of uterine displacements, such as retroversion, prolapse and procidentia, were frequently caused by falls and injuries, but it is now known that these conditions are due to gradual stretching of supports, either congenitally weak or damaged by child-bearing.

Dr. Harry E. Mock, of Chicago, in a paper on this subject before the American Medical Association at St. Louis, May, 1922, states that he had sent out questionnaires to fifty of the leading gynaecologists in the country and, from the replies received, practically all were unanimous in their opinions that traumatism is never a causative factor in the production of uterine displacements, except in acute temporary displacements caused by falls on the buttocks, or heavy straining while the bladder is over-distended. Among the replies received, Dr. N. Sproat Heaney said, "The cases of actual traumatic displacements of the uterus are extremely rare, but I have seen a few instances in my own patients where I had examined the patient before and subsequent to a fall and found the uterus displaced.

"In all these instances the accident occurred when the patient had a full bladder and the trauma occurred when the uterus was half way back and it was easy to throw the uterus backwards. In such instances it happens that if the patient is seen soon after the accident, a simple replacement of the uterus is sufficient, other treatment not being required."

Dr. Moorehead replied that he had seen female patients with injuries due to all sorts of trauma, but had never seen or heard of one who received an injury producing displacements of the uterus, even in such marked injuries as fracture of the pelvis.

Dr. Harpster replied that, of approximately five hundred such claims, he knew of no actual cases of traumatic displacements of uterus, abnormal positions in every case being due to other causes.

Dr. Samuel C. Plummer said, "The majority of these claims against the railway companies are due to rough handling of the trains, either by setting the emergency brakes or are a result of collisions or derailments in which the patient is generally thrown against the back of the seat in front of her, receiving some violence to the upper part of the body, but none to the abdomen or pelvis. The usual history is that no complaint of any pelvic trouble is made until some weeks afterwards, when, as a result of a pelvic examination by a physician, a displacement of the uterus is discovered, without, however, any sings of acute injury.

"I believe that traumatic displacements of the uterus are exceedingly rare and, when they do occur, that they are accompanied by immediate and violent symptoms, such as extreme pain, local swelling, and tenderness. I believe that the vast majority of these cases are old cases whose presence is either unknown or denied."

One of the best known railway surgeons in the country replied that in more than twenty-five thousand accident cases, he had never seen a true displacement, retroversion, retroflexion

or prolapsus due to traumatism, and further said that often, when claimed, they do not exist. The patients too often make the statement of displacement, and this fact is clung to by claimant and attorney.

This surgeon in this connection reported the following case: In this instance the claim of displacement was made and substantiated by three doctors. Between the time of injury and the time of trial, the patient was taken with acute appendicitis and admitted to his hospital service. At the time the patient did not know of his connection with the company, although he had a file on the case.

An appendectomy was done. Three disinterested surgeons were called into the operating room, and by enlarging the incision, the uterus was found in a normal position.

The claimant and her attorneys were afterwards notified. The case never came to trial but the attorneys were very bitter because of the claimant's carelessness in securing the company's chief surgeon to remove her diseased appendix.

Dr. Mock states that, in his own experience, which included seven years as instructor in Gynaecology at Rush Medical College, nine years as chief surgeon of a large industry employing over six thousand women, several years in general surgery with an extensive traumatic service, he had never seen a true case of traumatic displacement of the uterus, but had seen several alleged cases, none of which was able to withstand a careful investigation.

Dr. Mock commenting further on the replies to the questionnaires sent out by him says, "The outstanding fact is that no one was able to report a true permanent displacement of the uterus which could irrefutably be ascribed to accident as the sole etiological factor, but frequently the general practitioner, who had never thought of the medico-legal aspect of the case, thought he could trace the condition by the history of the symptoms, back to an alleged injury, and frequently the patient dated her trouble from a certain injury, but neither she nor the physician knew whether or not the displacements was present prior to that date."

From a careful survey of all these facts, we can come to no other conclusion than that permanent displacements of the uterus are never due to traumatism *per se*. It cannot be denied that traumatism may cause some exaggeration of a pre-existing and often unrecognized displacement, but a careful examination will show the chief etiological factor to be pre-existing diseased conditions or damage, usually the result of childbearing.

Acute temporary displacements of the uterus, under conditions already mentioned, may occur as the result of traumatism, but they are accompanied immediately by symptoms of such severity that they demand immediate attention (these symptoms being such as the patient never experienced before), and the relief experienced on replacement is so prompt and so complete, as well as permanent, that there should be no difficulty experienced in distinguishing this condition from the permanent displacements which are so frequently the basis of claims.

So far, I have been unable to find any record of an acute case having ever been made the basis of a personal injury claim.

MacBain Building.

CHRONIC APPENDICITIS AS A CAUSE OF ACIDOSIS IN CHILDREN.*

By STUART McGUIRE, M. D., Richmond, Va.
Surgeon to McGuire Clinic.

The term acidosis was first employed by Naunyn to designate incompletely oxidized acid substances in the organism of a diabetic subject which produce an intoxication of the patient. Some time later Marcel Labbe showed that the acid syndrome may be encountered in morbid processes other than diabetes, and that it is often observed after starvation, prolonged vomiting, severe diarrhoea, certain febrile diseases, the administration of anesthetics, and numerous other conditions.

It is not the purpose of this paper to attempt to discuss the present conception of acidosis. The original theory that it was simply a diminution of the reserved supply of the fixed bases of the blood and other tissues of the body has been found to be inadequate. In addition to the acid toxicity of the acetone compound there would have to be considered the special toxicity found to remain in the blood serum after it has been restored to normal alkalinity by the exhibition of bicarbonate of soda. Then too the complicated pathologic problems of hepatic insufficiency and renal impenetrability would have to be dealt with.

Let it be sufficient to say that acidosis is not

*Read at meeting of Tri-State Medical Association of the Carolinas and Virginia, held in Greenville, S. C., February 21-22, 1924.

a disease but a symptom. It is not a cause but a result. Like pain and fever it is merely the expression or manifestation of some disease or abnormal condition.

The acidosis syndrome is a familiar one to most practitioners. The patient suffers with a slight but constant headache. There is usually drowsiness and sometimes stupor. The respiration is rapid and difficult. There is some fever, the temperature often reaching 102° to 104° F. Anorexia is always marked. There is mild stomatitis with a red varnished tongue. Sometimes there is diarrhoea and usually repeated vomiting which at length may assume the pernicious type. Often there is abdominal and gastric tenderness such as to suggest appendicitis. The most characteristic symptom is the odor of the breath which resembles that of chloroform or a russet apple. The urine shows large quantities of acetone and traces of albumen and diacetic acid. This is sometimes absent in the early stages and most marked during convalescence.

It has been observed that certain children have recurring attacks of acidosis at intervals of three or four weeks. These patients are usually nervous, high-strung subjects and the attacks are precipitated by constipation, imprudence in eating, excessive fatigue, over-excitement, exposure to cold, or some acute illness. During the interval between the attacks, the child may have good digestion and appear to be in normal health. These patients properly go to the pediatrist who treats them in various ways with varying degrees of success.

While it is important to direct the child's mode of living and improve his general health by the observation of recognized sanitary measures, the most important factor in the treatment of these cases is the proper regulation of the diet, which should be low in fats and high in carbohydrates. Much benefit is often derived from testing the skin reaction of the various food proteins and eliminating those that are positive. It has long been recognized that a tendency to acidosis is created by local foci of infection; hence, diseased tonsils should be removed, abscessed teeth extracted, discharging ears treated and suppurative processes in glands, joints or bones properly dealt with.

In some cases, despite all that can be done, the attacks continue to recur and the child goes from bad to worse. Some years ago Dr. McGuire Newton, a child specialist of Richmond, brought such a case to me. He said that while he had no definite reasons for his opinion, he believed that the symptoms were due to chronic appendicitis. He stated that much had been written about acute appendicitis in children and the profession was aware of its frequency and danger, hence cases were as a rule diagnosed early and operated on promptly. He said that very little had been written about chronic appendicitis in children and he was sure the disease was more common than was generally supposed and that the manifestations were attributed to other causes until the diagnosis was cleared up by a frank attack. He gave the history of several children he had treated over a long period of time for recurring attacks of acidosis, who had developed acute appendicitis and after the appendix had been removed ceased to suffer from acidosis. He spoke so earnestly and logically that I agreed to operate on his little patient, feeling justified in doing so because the case had been long and carefully studied and all the usual methods of treatment had been faithfully tried without benefit. On opening the abdomen I found and removed a kinked and adherent appendix evidently the seat of chronic infection. The child made an uneventful recovery, gained weight and strength rapidly, and has had no further attacks of acidosis.

Since the case just described I have done the same operation for similar symptoms on fifteen other patients and the successful results have been so uniform and gratifying that I have feared I might drift into the delusion that appendectomy was indicated in all cases of recurring acidosis in children. I have tried to protect myself from this serious danger by being doubly careful in my diagnostic study of these patients, and being slow to bring myself to the point of advising operation. To this may probably be attributed the successful results reported.

The diagnosis of chronic appendicitis is often difficult in the case of an intelligent adult, who can give his history and describe his symptoms. It is naturally much more difficult in a child, who is sick one day and well the next, and whose mouthpiece is usually a young and anxious mother. The absence of pain or tenderness by no means excludes chronic appendicitis. Fortunately, as was brought out by Dr. A. L. Gray in a paper written in 1920, the improved technique of X-ray examination of the gastro-intestinal tract will often give in-

formation of great value as to the condition of the appendix. A positive diagnosis of chronic appendicitis may be made if the X-ray shows—

1. Adhesions about the appendix.
2. Concretion in the appendix.
3. Constant constrictions in the appendix.
4. Delayed emptying of the appendix.
5. Presence of tenderness which follows the appendix when it is manually displaced under fluoroscopic examination.

A negative report after an X-ray examination does not exclude chronic appendicitis. If the lumen fails to fill after the administration of a barium meal it may mean the total occlusion of the appendix, or it may mean a transient filling and emptying so that at the time of examination it is empty. An empty appendix is of no definite significance. Therefore, an X-ray report is valuable in these cases when it is positive, but is unreliable when it is negative.

The time limit of this paper will not permit a detailed report of the sixteen cases in which I have removed the appendix for recurring attacks of acidosis, but I desire to record one recent and severe case where the X-ray was negative but whose life I am confident was saved by the operation. This case is of special interest because I was forced to operate during an acute attack which is contrary to my usual practice and because, in addition to removing the appendix, I also did a cecostomy in order to introduce fluid into the large bowel.

E. V. M., female, aged eleven, entered St. Luke's Hospital, May 21, 1923. Her mother stated that she had repeated attacks of acidosis between her first and sixth year. Her tonsils were then removed and she had no further attacks for three years. When nine years of age the attacks recurred. On admission to the hospital she had been ill with an attack for four days. Examination showed the patient emaciated and dehydrated, skin cold and gray in color, pupils markedly dilated, eyes sunken and staring, lips and tongue red and parched, respiration deep and sighing. Urinalysis showed presence of acetone and diacetic acid. Patient constantly begged for water which was promptly vomited regardless of the amount taken. The case was turned over to Dr. Howard Urbach, a specialist in diseases of children, who treated her medically along accepted lines. The patient was critically ill for ten days and then began to improve. In two weeks she gained nine pounds in weight and was able to walk about the hospital and go for an automobile ride.

A careful general examination was then made to try to determine the cause of the recurring attacks of acidosis. There was apparently slight tenderness over the appendix, but this was not marked. X-ray of the gastro-intestinal tract was negative except that the stomach was found slightly larger than normal. The father and mother were told that it was impossible to make a definite diagnosis but that in view of experience in similar cases it was believed it would be wise to remove the appendix. The parents consented to the operation but urged postponement in order to let the child gain additional weight and strength. This was agreed to but on June 19th while the child was still in the hospital under careful supervision she complained of headache, and despite prompt and vigorous treatment developed severe symptoms of acidosis. For four weeks she was desperately ill and failed to improve under the measures suggested by various consultants. Finally it became evident that death was imminent and inevitable unless something radical was done, and an operation was determined on as a final effort to save life. Under local anesthesia aided by light inhalations of gas-oxygen, the abdomen was opened, the appendix removed and a rubber tube inserted into the cecum after the technique suggested by Dr. J. W. Long for enterostomy. The appendix was found chronically inflamed and adherent. Examination showed a stricture at the base and two concretions in its lumen. After the patient was returned to bed fluids were given by mouth to relieve the intense thirst and a solution of soda and glucose was injected through the tube into the bowel every hour to supply fluid in her dehydrated tissues. For two days her life apparently hung by a thread but then the vomiting lessened, the thirst diminished and from that time on she made a rapid and uneventful recovery. The patient's estimated weight at the time of operation was 35 pounds. Four months later her weight was 70 pounds and she is now in good general health.

So many unnecessary and injudicious operations have been done for supposed chronic appendicitis that I have hesitated to write a paper which even in a small way might add to the number, but my experience has been such that I feel justified in advising appendectomy in cases of recurring attacks of acidosis in chil-

dren, when hygienic and dietectic treatment have been exhausted without relief and where no other focus of infection can be discovered. Under these conditions I would urge the operation with great confidence if the X-ray examination showed the appendix was not normal.

DIAGNOSTICS OF SOME ACUTE ABDOMINAL CONDITIONS.*

By CORA Z. CORPENING, M. D., Suffolk, Va.

The acute abdomen is one of the most common and most important conditions which confronts the physician or surgeon, and the doctor who can most ably dizerentiate between the various acute abdominal conditions, through the prompt interpretation of the signs and symptoms, is the doctor who will greatly lower the operative mortality, and will ultimately do the greatest service to mankind.

It is not my purpose to present the acute abdomen whose signs, symptoms and physical findings are so indefinite that an exploratory operation is indicated for diagnosis, but rather to present a few conditions commonly encountered in every day practice, whose clinical characteristics are so typical that a diagnosis can promptly be made if the signs are properly interpreted.

Among the conditions most commonly encountered are acute appendicitis, acute salpingitis, acute cholecystitis, ectopic gestation, acute intestinal obstruction, traumatic rupture of abdominal viscera, and acute peritonitis. Some of these conditions are very common, others are seen less frequently, but all of them will likely be encountered several times in the experience of a busy doctor.

We will first take up the most common condition found in the acute abdomen, that is, the acute appendix, whose four cardinal symptoms were classified by the late Dr. Murphy. These appear in the following order:

1. Pain around umbilicus.
2. Nausea and vomiting.
3. Fever.
4. Pain and tenderness localized in right side.

When the above symptoms are found in the order given, the condition need not be confused with anything else. There will be found tenderness and rigidity over McBurney's point. This is best detected by comparative bimanual palpation, when it will be found that the hand on the left side of the abdomen will sink much deeper than that on the right. Usually there is moderate to high leucocytosis, but this is confirmatory rather than diagnostic. In both typical and atypical cases, pneumonia, renal and pelvic disease should be excluded by a careful history and physical examination.

Perhaps the next most common condition found, where colored women are included in the clientele, is acute gonorrheal salpingitis. More often we find that the acute condition is an exacerbation of a chronic process. Usually the history and physical findings are so characteristic that little difficulty is encountered in arriving at a diagnosis. In the majority of our cases the following symptoms and signs are presented:

1. Acute pelvic pain, on one or both sides, coming on during or just after a regular menstruation.
2. Tenderness and rigidity of lower pelvis just above pubis.
3. Usually vomiting and constipation.
4. Tenderness and rigidity of the adnexa with or without palpable masses in the vaults or cul-de-sac.
5. Moderate fever, moderate leucocytosis.

Ectopic pregnancy may be confused with this condition on account of the location and similarity of the symptoms. In both conditions there is usually a history of previous pelvic infection and sterility. The location of the pain may be the same, but the pain of ectopic pregnancy is intermittent and griping, while that of salpingitis is continuous and aching in character. Ectopic comes on after a skipped or an anomalous period, and is associated with persistent metrorrhagia. Salpingitis is usually precipitated during or just after the regular menstrual period, which may be prolonged, due to the pelvic congestion at this time. In ectopic the tenderness and rigidity are most marked over the fruit sac, in acute salpingitis the greatest tenderness and rigidity is found in the lower pelvis in an area which can be covered by the hand laid transversely just above the pubis. This corresponds to the well defined limits of pelvic peritonitis so characteristic of this disease. Occasionally tenderness and rigidity are marked over the appendix also, but this usually represents an extension of the pelvic process and, since the outer instead of the inner coats of the appendix are involved, surgical interference is rarely necessary. Landmarks of an

*Read before the Seaboard Medical Society of Virginia and North Carolina at Newbern, N. C., December, 1923.

old gonorrheal infection may be present, but it is often impossible to find gonococci in the vaginal smear. In any case, severe pelvic pain coming on during or just after the regular menses with well defined tenderness of the adnexa is almost pathognomonic of pelvic infection.

Acute cholecystitis is a less common condition but more important because of its definite progressive stages and their complications, endangering health and life. A typical case will likely give a history of typhoid, pneumonia or previous biliary attacks and will present the following symptoms:

1. Pain in right hypochondrium which may or may not be referred to back or right shoulder.
2. Nausea and vomiting often marked.
3. Local sensitiveness.
4. Fever and leucocytosis.

The pain is not severe nor colicky unless the cystic or common duct be occluded. If jaundice is present the common duct is occluded. In the presence of infection the fever and leucocytosis is moderate, as long as the condition is confined to the gall-bladder. If the temperature is high, 103° to 106°, with sudden drops describing the temperature angle, the process has involved the cystic duct and rapid absorption is taking place through the rich lymphatic supply in this area. If, in addition to the chills and high fever, there is jaundice, the process has spread to the common duct, another area rich in its lymphatic supply. This is the type of case formerly called malignant malarial jaundice. The prognosis in these cases is invariably bad.

The most infallible symptom of gall-bladder disease is local sensitiveness on perpendicular percussion over the gall-bladder. It is also well to remember that pain, fever and leucocytosis are comparatively mild while the process is confined to the gall-bladder, whose lymphatics are meager and whose cavity is large. It is only when the process occludes the ducts which are rich in lymphatics that we find severe pain and great absorption.

Acute intestinal obstruction is often caused by a strangulated hernia, and the various abdominal rings should be carefully examined. A history of an abdominal operation or of an acute or chronic abdominal process would point toward inflammatory adhesions as the cause of the trouble. In the small intestine nearly three-fourths of the cases are caused by strangulation. In the large intestines over one-half the cases are due to intussusception. In children intussusception is the most common cause of obstruction. (It is characterized by the passage of bloody mucus from the rectum, by the sausage-shaped tumor along the colon, and occasional protrusion of bowel from rectum). Obstruction due to twists, stricture, or malignant growths usually involves the large intestine, low down, and may be detected by rectal examination. Marked tympany in the right inguinal region is considered by some a diagnostic symptom of obstruction due to Meckel's diverticulum.

Whatever the cause of the acute obstruction, the symptoms have certain common characteristics. These are:

1. Sudden acute abdominal pain, at first intermittent, later continual.
2. Obstinate constipation with inability to pass flatus.
3. Vomiting growing progressively worse to fatal termination.
4. Subnormal temperature.
5. Abdominal distention.
6. Early prostration.

The abdomen will be very tender in spots and we may get visible peristalsis or may palpate a mass. The constipation is absolute, is unrelieved by purgatives or enemas, and the patient is unable to expel flatus even in the early stages. Fecal vomiting appears early and is almost continuous. Prostration, or shock, when present, usually indicates a markedly disturbed circulation in the affected area, with the absorption of much toxic material. The prognosis in these cases is always grave.

Probably the most valuable points in differentiating acute intestinal obstruction from other abdominal conditions are the history of its onset, and the subnormal temperature. The absence of marked tenderness and rigidity and the character of the pain will differentiate it from peritonitis.

Ectopic gestation though not uncommon is considered one of the acute abdominal conditions most frequently overlooked, though the diagnosis could be made before rupture, in the vast majority of cases, if proper attention were given to the history and physical findings. Often there has been a period of sterility and former pelvic disease. There is usually a period of amenorrhea, with other symptoms of early pregnancy. Sharp cramping pains with soreness and discomfort in lower pelvis

are usually complained of before primary rupture.

The cervix is suggestive of pregnancy but exquisitely sensitive to motion. The uterus may be enlarged, but is empty. The growing fruit sac may be palpated beside, in front, or behind the uterus, displacing it. In the later months we will get signs of a late pregnancy with a uterus which is proportionately undeveloped, and separate from the tumor mass.

After rupture we get a persistent metrorrhagia. In some cases this begins with gestation. The bleeding is irregular in occurrence and amount, but often there is only a spotting coming on after the paroxysms of intermittent griping pain. The discharge may be of reddish brown color. Signs of collapse may come on at time of rupture, or as a result of severe internal hemorrhage.

Persistent metrorrhagia after a skipped or an anomalous period with intermittent griping pelvic pain usually means ectopic gestation, especially if in addition to this we get a history of former pelvic disease with a period of sterility. These findings will confirm the diagnosis:

1. Displacement of uterus by sensitive well defined mass.
2. Pelvic tenderness and rigidity most marked over mass.
3. Existing signs of pregnancy with cervix exquisitely sensitive to motion.
4. Moderate leucocytosis with diminution in hemoglobin and red count.
5. Temperature subnormal or slightly elevated.

The aspiration of the mass through the vagina will further aid in confirming the diagnosis.

Traumatic rupture of the abdominal viscera is a condition not frequently encountered, but is one that should not be lost sight of. The organs most commonly affected are the kidneys, spleen, liver, urinary bladder, and the intestines. These will not be considered separately at this time, but we will mention some outstanding features applicable to all. After a few hours the symptoms of the primary condition may be marked by a general peritonitis, or by a peritoneal irritation, due to the extravasation of blood into the peritoneal cavity. We commonly get:

1. A history of trauma, usually violent.
2. Profound shock coming on immediately, with subsequent marked improvement of the symptoms.
3. Sharp lancinating pain over organ involved.
4. Marked tenderness and rigidity of abdomen.
5. Tympany even in the presence of much extravasated blood.
6. Bloody urine in rupture of kidney or urinary bladder.

The marked improvement of symptoms coming on rapidly after the initial shock is a snare that too often causes a fatal delay. In rupture of any viscus shock is extreme and the patient looks almost cadaveric. They rally from this initial shock rather rapidly, as a rule, and on account of the marked improvement, we are prone to wait and defer surgical treatment until symptoms of shock from profuse hemorrhage or from peritonitis appear. Then it is often too late.

If the signs and symptoms are not clear enough to make a positive diagnosis promptly, it is better to do an early exploratory operation than to do a late post-mortem examination. Profound shock coming on immediately after violent abdominal trauma usually means severe injury to some important organ and it is better to open the abdomen to find out which one is involved than to wait until irreparable injury has been done.

Acute peritonitis, local or general, is never primary, but is always secondary to some other condition. If the patient is seen for the first time after peritonitis has set in, a careful history will often determine the primary cause. The signs and symptoms of any former condition are obscured by those of peritonitis which appear as follows:

1. Sudden onset with chill, fever, and quick wiry pulse.
2. Intense continued abdominal pain.
3. Abdominal tenderness, distention and board-like rigidity.
4. Posture—the patient lies motionless on back with thighs and legs flexed.
5. Early collapse. Short course.
6. Anxious expression with pinched features.

When the condition is produced by extension, it begins with local and gradually increasing pain, tenderness and rigidity. Vomiting and constipation become marked, the temperature rises and the pulse is tense and wiry. When it is caused by perforation, there is sudden intense pain with all the symptoms of shock. In the early stages there is always tympany, in

the later stages, after exudate has been poured out, we may get dulness over the site of the exudate.

Local peritonitis is difficult to detect and often the exploring needle is necessary for a diagnosis, but a history of a previous acute abdominal condition followed by continual intense abdominal pain with marked rigidity of the abdominal muscles, the typical decubitus and the hippocratic expression, makes a diagnosis of general peritonitis comparatively simple.

There are many other acute abdominal conditions whose symptoms could be emphasized with profit, but these few most commonly encountered have been presented as being most important. The questionable, difficult cases have not been touched upon, for the reason that many presenting *typical* signs and symptoms go on to a fatal termination for the lack of prompt diagnosis and treatment.

Lakeview Hospital.

SOME STOMACH GENERALIZING.*

By GEORGE A. CATON, M. D., Newbern, N. C.

It cannot be too clearly understood that the science of gastric diagnosis is the art of taking trouble, that it is at all times diametrically opposed to guess work, and that an accurate recognition of the nature of the complaint is the only possible basis for curative treatment.

It is a regrettable fact that, in all the special fields in medicine, so far as I am aware, there is not one where rank carelessness is more evident than in the diagnosis of gastric disease. However, I believe that, when it is understood how tedious and how long and exacting the work is, many men would be inclined to excuse us for our short comings in this regard. I have done some of everything pertaining to diagnostic work in all the common diseased conditions, but I have yet to find work in my professional duties which so thoroughly tires one out.

One reason why gastric diagnosis is so exacting and tiresome is because one so frequently has to hunt through the entire organism to find the cause of the complaint. Thus, continuous secretion of gastric juice, once regarded as a primary neurosis of the stomach, is now known almost always to be a mere complaining of the stomach that some other organ connected with it through the sympathetic nervous system is diseased—is suffering. Duodenal or gastric ulcer, or a chronically diseased appendix will cause such a secondary phenomenon as continuous secretion.

I was once asked to see a woman of forty who was thought to have indigestion due to defective vision. She was refracted and given glasses which she informed me had not seemed to relieve her indigestion. When the stomach tube was introduced, an obstruction was encountered near the cardiac end of the stomach in the æsophagus. This on further examination proved to be cancer which, no doubt, was engrafted on an old ulcer scar, as she had had gastric trouble for a long while.

Many cases are very difficult of diagnosis and these usually belong to families in whom stomach trouble has existed for generations. They are mostly functional nervous disorders, manifested by dull aching in the gastric region after certain articles of diet, or perhaps by a lump in the throat which will neither come up nor go down.

I have found that the highly nervous and unstable temperaments furnish a great number of these cases and, may I add, that the nervous types should not be lightly regarded for, while few of them lead to destruction of life even ultimately, they are the most devilishly harassing to the patient and no less so to the doctor. Such cases, dependent on simple constipation of course, are easily cured.

Again, we encounter a great many cases where gastric atony plays the major role and, although no demonstrable lesion of the stomach or adjacent organs of digestion may be found, the trouble is there nevertheless. Many of your patients of this class who have weak hearts, after indulging too-freely in certain foods, will have so-called acute indigestion and die.

Weak stomachs are inherited, just as are weak hearts, and lungs and livers. Many of these cases of so-called acute indigestion are due to hepatic lethargy or insufficiency. Gastroptosis, with dilatation of the stomach, atony, and inability on the part of the organ to empty itself in proper time, is a prolific cause of gastric distress, of fainting spells and of great apprehension, and, at times, of serious symptoms which drive the patient to the physician.

Ulcer of the stomach is common among gastric cases and demands a most careful examination after carefully obtaining the history.

*Read at the meeting of the Seaboard Medical Association of Virginia and North Carolina, in Newport News, Va., December 4-6, 1923.

Any case of gastric trouble which complains of a sore spot in the pit of the stomach, which has vomited blood, or which has passed blood through the intestines, or has pain in the stomach when empty, absolutely demands careful examination with most modern equipment, in order to arrive at a conclusion for basis of intelligent treatment, for it is estimated that at least 75% of gastric cancers have their origin in old untreated gastric ulcers.

Not long since I had a case present himself for treatment. The man was in a dying condition from a perforation of the stomach resulting from one of these untreated ulcers. He died next day.

I have recently seen a case of near fatal hemorrhage from untreated ulcer, untreated because undiagnosed. It has been my observation that these cases just worry along, first because they do not appreciate the gravity of their disease, and second because the attending physician has not made a diagnosis nor has he referred the case to one doing high grade diagnostic work.

A case in point was a man about 65 years of age who informed me he had been treated for some gastric complaint. He looked really very ill and was advised to have a study made of the digestive apparatus. This was done chemically, physically and with the X-ray. On palpation there was found a much distended abdomen with apparently a great deal of liquid in the stomach. The stomach tube was introduced and the amount of fluid and decomposed food removed through the tube amounted to something like 6 quarts, parts of which, according to the patient's statement, had been there two weeks. An X-ray examination followed, the usual barium meal was given, and the characteristic chopped off appearance of the pylorus was in evidence.

A diagnosis of cancer of the pylorus was made, and the patient advised that operation was the only procedure which offered any hope whatever of cure or an arrest of the condition, and that probably operation would be of no value. He decided to grab at the straw and was accordingly opened up and a carcinoma the size of one's fist was found. This man had a very fat belly, hence the difficulty of palpating the tumor which was done after some time.

I have no criticism to make, but I do feel that cases which do not yield promptly to treatment in the hands of men who have had no special training in this field of work should be promptly referred. As I see it, it is a matter of saving life just as certainly as the giving of quinine for malaria or 606 in syphilis. The results might not be so uniformly good but many would be saved.

I should like to add a final word in regard to the treatment of gastric ulcer by means of the Roentgen ray as an adjunct to medical and dietetic treatment. I have used this method of treatment in several cases in the last year and have been gratified at the prompt results. I believe that there is a definite field for the X-ray in the treatment of gastric and other ulcers of the alimentary canal.

AN ANALYSIS OF ONE HUNDRED CONSECUTIVE ABDOMINAL OPERATIONS.*

By GEORGE H. REESE, M. A., M. D., P'etersburg, Va.

This paper is based on a series of one hundred consecutive abdominal operations performed in the Petersburg Hospital during a period ending November 27, 1923, for conditions acute, sub-acute and chronic. Sixty-five per cent of these were infected cases of varying degrees of virulence.

Some of these patients had been neglected or mistreated at home by themselves or others and, when admitted, were in wretched physical condition. All, however, were given prompt surgical attention when needed, regardless of any unfavorable prognosis.

Naturally, operations done under such circumstances tend to show a higher mortality than those performed on a series of carefully prepared or well selected cases. Yet, the practice in some localities of referring purely surgical patients to the medical ward, and condemning them to fight again their battles under non-operative treatment, when this already has failed at home, seems a negation of the uniform value of surgery in these grave abdominal conditions. Furthermore, it confirms the work of the procrastinator by testifying to the family, in the most eloquent way, that operative treatment in this class of cases is not most conducive to recovery.

The logic that surgery is good for an acute appendix, or for an interval appendix, or for a chronic pus tube, but must be shelved for

*Read at the meeting of the Southside Virginia Medical Association in Petersburg, December, 1923.

non-operative measures if the salpingitis is acute or sub-acute, or if the appendicitis is four days old, or if diffuse peritonitis has set in, is one that is hard for either the public or the medical profession at large to grasp. Even among the leaders of the surgical world, the practice in this field is not uniform, and this confusion doubtlessly leads many general practitioners, when confronted with a case of advanced appendicitis, for instance, to attempt in all sincerity, being fortified by high example, to treat the case by methods other than operative. Why shouldn't they if these cases are not to be operated on at once?

This is one side of the picture and it is not overdrawn.

On the other side, is that class of surgeons swayed by the belief that pus must be evacuated wherever found; certainly, unless the patient is improving, or else speedily changes for the better; simply opened and drained, if the condition of the patient or pathology is such as to permit of no further manipulation. To this class, I unhesitatingly adhere, though constantly bearing in mind the advantage of removing, at the initial operation, all removable pathology that the safety of the patient allows.

I am sure, as far as human estimate can be sure that, by following consistently this practice, at least in this series of cases I have reduced the impending mortality fully two-thirds.

On the other hand, if I had picked my cases and operated only on those of favorable prognosis, barring two deaths from gunshot wounds of the abdomen, which in civil life admit of no operative choice, I would have had no surgical mortality; yet without prompt operation, my total mortality, as indicated above, would doubtlessly have been tripled.

It is impossible for us in this locality, due to existing social and economic conditions, to coddle along cases of pelvic infection, for example, waiting for the most favorable time to operate. They usually come to us at their worst, physically and financially, and generally after the last straw of hope of relief through non-operative measures has been exhausted. At times, this is true of other abdominal conditions. It is too often a case of operate at once and give the patient a chance, or else undergo the certainty of shortly recording a mortality, under non-operative treatment.

In the series of cases here reported are found:

Fourteen cases of acute appendicitis—six with abscess formation.

One case of chronic appendicitis.

Six cases of ectopic pregnancy.

One case of gastric ulceration.

Four cases of gunshot wound of abdomen.

One Caesarean section.

One case of intussusception.

One strangulated hernia.

Fifteen cases of uterine fibroids.

Four cases of tuberculous peritonitis.

Four ovarian cysts.

Four cases of diffuse suppurative peritonitis.

Forty-four cases of salpingitis in various stages of pathology.

In these cases of salpingitis other pathology existed as follows:

Right ovary alone cystic in three.

Left ovary alone cystic in eleven.

Both ovaries cystic in ten.

These cysts were hemorrhagic in two.

Uterine fibroids in four.

Acute appendicitis by inflammatory extension in three.

Pelvic abscess other than tube-ovarian in five.

In the ovarian cysts, the right ovary was involved three times; the left once.

In the fifteen cases of fibrosis, the left ovary was cystic three times sufficiently to demand removal. Twice in multiple fibrosis pregnancy was encountered. One case was almost moribund from pernicious vomiting.

One chronic appendix was found buried in dense adhesions.

In the one case of Caesarean section, the right broad and round ligament, as well as the right ovary, was congenitally absent.

The case of intussusception presented a gangrenous appendix.

The four cases of diffuse suppurative peritonitis apparently resulted from two ruptured appendices and two ruptured pelvic abscesses. One had a large fibroid on the right side of the uterus.

In the six ectopic pregnancies, the left tube was involved four times, the right twice. One case was complicated by fibroids and an acute appendix. One had a blood clot entirely filling the pelvis and distending the abdomen as high as the umbilicus, a temperature of 103, pulse

118, with an odor as rank as an ordinary post partum sapraemia.

The visceral injury in the four gunshot cases ranged from simple contusion of the ascending colon in one, to fourteen perforations of the small intestine, with three perforations of the omentum in another.

The irony of human effort is well illustrated here by the fact that the case of minor injury died of double pneumonia, following an exploratory incision, while the case of multiple perforation, following resection and suture of the remaining holes in the bowel, made an uneventful recovery.

The case of gastric ulcer was as clear a case as any text book ever recorded. After due confirmation, her abdomen was opened and an acutely inflamed stomach found, together with an undoubtedly pregnant uterus. About three months later the cause of her pain, tenderness, vomited blood and tarry stools was found to have been concentrated lye, turpentine, etc., recommended as ecbolics by solicitous friends and confidingly imbibed. She was delivered about six months later.

In all of these operations one ideal has been held supreme—that of making each operation a beneficial procedure to the patient. No attempt has been made in the majority of these cases to do stereotyped operations. Non-infective work may be standardized to the smallest detail; but each infected case is more of a law unto itself, and an accurate reading of this law as written by disease on each particular patient, and a due observance thereof is the foundation of all successful work in this kind of surgery.

The pre-operative and post-operative treatment in those cases permitting it has been simple.

With no involvement of the intestinal tract, regular diet is permitted until the meal before the operation. No purgative is given. An enema is ordered several hours before operation. One-fourth of a grain of morphine, with a one-hundred and fiftieth of atropine, is given one-half hour before the patient goes to the operating room.

Enough morphine is given post-operatively to keep the patient comfortable. This is a point insisted on but it is never allowed except in rare instances after the second or third day.

Water and liquid food are allowed when tolerated. If the patient is urgently in need of fluid, the usual procedure of hypodermoclysis is resorted to, followed by continuous proctoclysis, with tap water, or a mixture of glucose and soda solution, three per cent each. Tap water, as recommended by Trout, seems to be more readily absorbed than normal saline, and can have no deleterious influence on involved kidneys, which already may be a part of the patient's pathology, or may follow etherization. It is recommended that every fourth pint be of salt solution, in order not to deplete too greatly the bodily chlorides.

In shock, saline, adrenalin, and caffeine, have given the best results.

In peritonitis, the treatment is Fowler's position, starvation, morphinization, and hydration by the Murphy drip with tap water, or by glucose and soda solution. Feeding is resumed as soon as gas or feces begin to pass.

In cases requiring drainage, the principle of copious early drainage, quickly dispensed with, has been followed. In no case has the early removal of drainage been a cause for regret. It is generally conceded that, after twenty-four or forty-eight hours, any form of drainage merely drains the sinus formed by itself. As a foreign body, it is an irritant and left too long causes unnecessary pain and undue adhesions, with all the malign consequences of both. All patients who have come under my observation express their gratitude when drainage is removed. There seems to be little tendency for the abdominal wound to close in these acute conditions, as long as there is anything in the drainage area necessitating evacuation.

Three of these cases developed post-operative ileus with fecal vomiting. As it was practically certain that they were due to inflamed bowels or nerve paralysis from toxins, rather than from constricting adhesions, they were given the same treatment that is demanded by any other form of pyogenic peritonitis. All three, under morphine starvation and the Murphy drip, promptly subsided. The first was tried on high enemas and repeated doses of pituitrin, with no favorable result. Morphine produced almost immediate improvement and final recovery. It would be interesting to know how many of these cases are predisposed to, or produced by trauma, exposure to air, sponging and other vitiating influences during operation, by attempts at purgation and other injudicious after-treatment. I am inclined to think that none of these cases

would have developed, had they been kept more thoroughly under the influence of morphine until assured that all peritonitis had subsided.

As to morbidity, only one patient has had persistent post-operative pains. This has apparently been due to a cystic ovary which I punctured and left, instead of removing.

The operative mortality in this series of cases has been three. Two of the four cases of gunshot wounds of the abdomen died: one of peritonitis; the other of double pneumonia, presumably from the anaesthetic.

One case of diffuse suppurative peritonitis died the morning following incision and drainage. This patient was urged to submit to operation a month before, but refused until thoroughly septic.

Two cases of tubercular peritonitis have subsequently died, and one case of uterine fibroids dropped dead shortly after returning home.

All the others, as far as I am able to determine, are doing well.

THE DIAGNOSIS OF CANCER FROM THE STANDPOINT OF THE GENERAL PRACTITIONER.*

By C. P. OBENSCHAIN, M. D., New Hope, Virginia.

The name, cancer, as used in this paper is understood to include all malignant growths, ulcers and tumors to which the human body is subject. This is not a long or scientific differential diagnosis, but is merely the diagnosis in the rough, and the methods of arriving at a conclusion of malignancy as used by others and from my own experience. In the rounds and activity of the general practitioner the diagnosis is the bugbear, and while important in all diseases, in cancer it is vital.

How often must we look for malignancy? This can be answered by stating all the time. It is estimated that after the age of thirty, five per cent of all deaths in the United States are caused by cancer.

Cancer shows a very definite predilection for certain ages. The majority of cases occur between the ages of fifty and sixty and the physician must be especially watchful in patients of this age. But very few cases occur under the age of twenty.

It must be kept in mind that this disease is far more frequent in women than men. This fact is to be attributed to the large number of cancers occurring in the uterus and breast, there being no corresponding organs in men similarly attacked. However, the large number of cancers of the stomach among men helps to swell the male proportion, but by no means is cancer of this organ peculiar to men. In men over thirty-five years of age cancer occurs in one out of eleven; among women over this age one out of eight have this disease. So much for the frequency, this is certainly enough to make us alert at all times.

The symptomatology of cancer depends so greatly on its location that it cannot be taken up in detail in a paper of this kind. We shall review certain general features and then some of the symptoms when occurring in special locations.

In the majority of cases the "lump" is the first symptoms to be noticed by the patient, excepting the growths in the internal organs. Even here the tumor may be the first complaint of the patient, but most usually a disturbance of function is the first symptom noticed by both the patient and the physician. A few illustrations may here be given. Thus, in carcinoma of the esophagus the first symptom is dysphagia; in carcinoma of the stomach there is a disturbance of gastric digestion or symptoms of pyloric obstruction; in malignant disease of the head of the pancreas or in the bile duct obstructive jaundice occurs; when in the intestines there will be chronic intestinal obstruction; in the rectum we have constipation most usually, and bleeding and discharge from the anus. Hemorrhage from carcinoma of many organs often first helps us to make the diagnosis, this being especially true of the bladder and uterus.

The character of the tumor or swelling often gives us information in cancer of internal organs, there being a certain firmness or nodular form which belongs to cancer alone. This is especially true in cancer of the liver. The tumor or growth is of greatest importance in all external affections where it can be felt or seen.

To simplify matters, different portions of the human anatomy will be dealt with separately. At this point I wish to state that the general practitioner is not at so great a disadvantage as his forefathers when it comes to making a diagnosis in malignant disease. There is no greater help to us than the group of

*Read at the meeting of the Augusta County Medical Association, in Staunton, February 6, 1924.

specialists to which we all have access. As the treatment in the most of cases is best left to the specialist, it is well to have one or even more to help with the diagnosis, especially when in doubt. When the name specialist is used here, it means the ethical physician who has specially prepared himself along certain lines, and who at all times keeps the family physician posted in regard to the case in question and its treatment, and returns the patient to the family physician, whose reputation he has not allowed to be jeopardized.

We shall begin with the skin. In this there are many times pre-cancerous lesions, such as moles, warts, birth marks, small or large growths, and other pigmentations, which have been with the patient most of his life. These often take on rapid growth at middle life and alarm the patient causing the physician to be consulted. It is not well here for the general practitioner to wait for a positive diagnosis but to treat all such as malignant and make the diagnosis later from a section in the hands of the specialist, this more for the sake of prognosis than for treatment. Any ulcer for which we can give no reason should be regarded as malignant if it persists too long, keeping in mind of course the ulcers of diabetes, varicose veins, syphilis, lupus vulgaris, and eczema. Syphilis and lupus are both diseases of youth, seldom appearing after the thirty-fifth year of age. If there is an ulcer on the lower lip of a man forty years or older, which does not improve immediately, it is nearly always epitheliomatous. Epithelioma of the genitals is not to be confounded with chancre, gumma, or syphilitic tubercles of that region. The pains of cancer; its prolonged duration; its occurrence in an aged subject, with the general history of the case, will usually point to the truth. If the skin lesion is sarcoma, it is still more important to make the diagnosis early, as it runs its course rapidly, occurs somewhat earlier in life, and has a tendency to multiply in near or distant parts of the body.

Carcinoma of the breast most usually occurs in women. In fact, it occurs so frequently that we are always suspicious of any lump or growth in the soft tissues of a woman's breast, our suspicions being doubly justified if the patient is over thirty-five. The general practitioner is not doing his duty if he waits here to make a diagnosis positive. The method of handling these cases is familiar to us all. The writer has seen one case of sarcoma of the breast in a man. This started from a small pigmentation under the left nipple which had been there all the man's life and just began to grow when he reached the age of sixty-five. Operation was refused until too late and, in spite of the use of X-rays, Coley's fluid, etc., the cancer proved rapidly fatal.

The family physician has cases come to him with symptoms of indigestion, rapid loss of weight, vomiting, the vomitus being often dark with coffee ground granules separating to the bottom of the vessel, history perhaps of ulcer of the stomach, peculiar yellowish color of the skin, most usually a tumor in the stomach region. This is carcinoma of the stomach. A blood count will eliminate pernicious anemia, it rarely being low in cancer as in this disease. A leucocytosis is in favor of cancer. An examination of the gastric contents in the hands of an expert will help very much. An exploratory operation will make the diagnosis certain and, if done early enough, will give the surgeon a chance to remove the trouble, which in true malignancy is the only hope the patient can have.

In cancer of the liver there is always a tumor, a tumor which in thin persons is easily felt and which has a peculiar nodular feel. Jaundice does not usually come until the last half of the disease, unless the bile passages are affected at first.

In cancer of the reproductive organs in women a positive diagnosis can rarely be made by the family physician until the chances for the best treatment have passed. However, if we have a case in which bleeding starts in a woman who has ceased to menstruate, and in which a vaginal examination shows enlargement of the cervix, or the womb, or a tumor, we are reasonably certain that we have cancer to deal with.

We shall now sum up the most important things for the family physician to keep in mind, when watching for or dealing with malignancy:

1. The diagnosis is important, as the treatment is most effective if given while the supposedly small troubles are still small.

2. The usual procedure of our courts should be reversed when dealing with the suspicion of malignancy and the offender under question considered guilty until it is proven innocent, and treated accordingly.

3. The chief duty of the general practitioner in all things dealing with health is education, this being especially true in malignancy, so that his services will be sought early and the diagnosis made in time. A late diagnosis helps with the prognosis and not with the treatment.

4. When in doubt, the general practitioner should seek immediately that great modern adjunct to the family doctor, the specialist.

5. The importance of all this can be exemplified no better than by giving the statistics. Of all persons afflicted with true malignancy, eighty-five per cent eventually die therefrom.

SUGGESTIONS IN PALPATING THE ABDOMEN.

By W. R. AYLETT, M. D., Newport News, Va.

In palpating the abdomen I have found it of great advantage to have the patient to rest his forehead on the edge of the examining table and bend forward until his body and thighs are at a right angle, at the same time relaxing the abdominal muscles as much as possible.

When on a table flat of his back, the abdominal contents, such as gall-bladder, kidneys (if floating), and tumors, tend to rest against the posterior abdominal wall and hide in a maze of intestines, omentum and other organs. In the position I suggest, they fall against the anterior abdominal wall, and often can readily be palpated. In fact, the shy tumors seem to crowd forward and, as it were, try to eat out of your hand.

Another method of palpating, especially for chronic appendicitis, is to have the patient rest flat of his back, press deeply with your fingers of both hands and pull outward until you press firmly against the inner surface of the ilium.

The peritoneum, after covering the caecum and appendix (often they are only partially covered) runs to the inner surface of the ilium. The nerves in chronic appendicitis are highly sensitized and when caught between the fingers and hard surface of the ilium produce an acute pain. When in the ordinary examination, downward pressure is made, these nerves rest against a distended caecum, literally an air cushion, and pain is hard to produce.

When pinched between the hard surfaces as I suggest, it is rare that the patient will not give vent to an "ouch."

In my experience, it is by far the most constant symptom of chronic appendicitis.

I have never seen this sign mentioned in textbook or magazine and it is original with me. In my experience it has proven of such value that I offer it to the profession.

3201 *West Avenue.*

Analyses, Selections, Etc.

The Gall-Bladder: Its Past, Present and Future.

In the Mutter Lecture of the College of Physicians, Philadelphia, December 7, 1923, J. E. Sweet, M. D., Professor of Surgical Research, University of Pennsylvania, in the *past* of the gall-bladder has reviewed its embryology, pointing out as the striking developmental fact that the gall-bladder arises as an independent unit from the same group of ancestral cells as give rise to the stomach, duodenum, pancreas and liver.

Under the *present* of the gall-bladder, the author reviews the gross and microscopical anatomy of the gall-bladder, emphasizing particularly the unusual blood-and lymph-supplies of the organ and the existence of two valve-like structures at the outlet of the gall-bladder. The writer also calls especial attention to the existence along the bile-ducts of out-pouchings of the mucosa, known to the old anatomists, but apparently forgotten by the modern generation, which seem to possess the functional possibilities of accessory gall-bladders.

In the *future* of the gall-bladder, is discussed the possible functions of the organ. Experiments upon the relation of the gall-bladder to the cholesterol of the blood are cited.

The author's conclusions are summed up in the following paragraph: "The manner of origin and development of the duct system of the liver indicates, I believe, that the membrane lining this system may be possessed of powers of absorption; the complex structure of the gall-bladder, the rich blood supply, the unusual lymphatic supply, point to an absorptive function. The position of the gall-bladder, the provision of two valvular structures at its outlet, which are manifestly designed to permit inflow and to hinder outflow, lead me to the conclusion that under normal conditions whatever passes into the gall-bladder through the cystic duct, never passes out again through the cystic duct." The bile contained in the gall-bladder is evidently absorbed, and in this pro-

cess of absorption it would see that the cholesterol esters of the blood are influenced.—(*International Clinics*, March, 1924).

Neurosyphilis in the Aged—A Study of 19 Cases of Senile Neurosyphilis Occurring in a Series of 2,175 Cases of all Types of Nervous Syphilis.

A. E. Bennett, in *Arch. Neurol. and Psychiat., Chicago*, 1923, *XXXII*, 324, says that cerebrospinal syphilis and tabes dorsalis developing in senility (60 years or older) are rare because in most cases the chancre is contracted in early life. The incidence is approximately 0.5 per cent of all neurosyphilis cases. Aged patients suffering from cerebral arteriosclerosis, senile deterioration, or nephritis are at times mistaken for neurosyphilitics. Cases developing after 60 years usually have the initial sore in middle life. In a few cases there appears to be a long period of latency, then, in the metamorphosing stage, this immunity is broken down, probably as a result of the degenerative processes of age. Then the neurosyphilitic involvement becomes apparent and as a rule does not respond to treatment, but is rapidly fatal.

General paralysis developing in senility is rare and practically never develops after 65 years. General paralysis in seniles simulates closely the dementia of senile deterioration.

Francis X. Dercum, discussing the above paper, found that syphilis acquired in middle life is very resistant to treatment, both the gummatous and parenchymatous forms. He cited a case in which the initial lesion was said to have been contracted 42 years before onset of symptoms.

Can Changes in the Central Nervous System be Demonstrated in the Early Stages in Patients with Positive Spinal Fluid Reaction by Clinical Methods?

A. Memmesheimer says that recent investigations have shown that syphilitic infection will involve the central nervous system quite early. The spinal fluid reaction often coincides with the clinical findings. Changes in the N. octavus are well known.

In judging of the lumbar puncture, the Wassermann reaction, Pandy, Nonne I, and the goldsol reactions are of importance. The author examined 10 cells. He considered those cases completely positive where the Wassermann reaction in the spinal fluid is positive, or where the Wassermann reaction is slightly positive and all other reactions suggesting pathologic conditions likewise positive.

A group of 46 cases with positive spinal fluid reaction, where the infection dated back to two years or less, was examined. In four cases where primary syphilis three weeks old existed (one seven weeks old) bad headaches were found. The eyes showed hyperemic papillae, and in two cases Haenel reaction. No definite signs of neuritis were demonstrated—in 24 cases where the infection had existed half a year, 8 of which were completely positive, showed pathological changes of the eye 17 times (71 per cent). In some positive Haenel, in others slow light reaction, and irregular pupils, papillipides, neuritides, and in two typical engorgement papillae were observed. A group with infections one-half to one year old, showed pathology of the eyes in 80 per cent. In 5 of them severe optic nerve disease existed with inflammation. In another group of 8, where the infection dated back one to two years, pathological state of the eyes was found in 62 per cent. It was shown that in most cases of primary and early symptoms with positive spinal fluid reactions changes in the function or the background of the eye will be found which suggest involvement of the central nervous system.—(*Deutsche med. Wchnschr.*, Berlin, 1923, XLIX., 1180).

Routine Wassermann Tests in a Thousand Nervous and Mental Cases.

C. S. Bluemel, in an article in *Colorado Med., Denver*, 1923, XX., 310, presented briefly the results of the Wassermann test run on the blood serum of one thousand consecutive nervous and mental cases. The results were as follows:

Positive, plus four, reactions	29
Weaker positive reactions	115
Negative reactions	856

Among the 856 patients with negative reactions, 13 gave a positive history of syphilis, while 35 others had neurosyphilis as evidenced by clinical symptoms or positive spinal fluid findings. Thus this group of 856 patients with negative Wassermann reactions contains only 808 patients who had never had syphilis.

The 29 patients with positive, plus four, reactions were all undoubtedly syphilitic.

Among the 115 patients with weaker positive reactions 44 were shown to be syphilitic, either by clinical symptoms, a positive history of syphilis, or positive spinal fluid findings. Among the remaining 71 of this group 38 were

thought to be free from syphilis, although many of them showed a weak positive Wassermann reaction on repeated examination. The remaining 33 of the group were probably syphilitic, as they showed rather strong reactions on the blood.

Two hundred and eighty-four patients had Wassermann tests run on the spinal fluid as well as the blood. The value of this test is demonstrated by the fact that it showed the existence of syphilis in 36 patients with negative or doubtful reactions on the blood.

Among 1,000 patients examined, 121 were found by history, laboratory tests, or clinical symptoms, to be syphilitic.

Proceedings of Societies

The Lee County Medical Society

Held its last meeting at Pennington Gap, Va., April 15, with Dr. C. C. Pearce, Pennington Gap, as president, and Dr. P. D. Pence, St. Charles, as secretary. It was decided that instead of meeting quarterly, as heretofore, the Society would hold its meetings on the second and fourth Monday nights of each month, the place being designated at each previous meeting. Election of officers for the ensuing year resulted in naming Dr. T. B. Ely, of Jonesville, president, and Dr. J. B. Muncy, of Jonesville, secretary-treasurer.

The Warren, Rappahannock and Page Counties Medical Society,

Of which Dr. D. M. Kipps and Dr. E. L. Grubbs, both of Front Royal, are president and secretary-treasurer, respectively, held its quarterly meeting at Front Royal, on April 8th, with one of the largest attendances since its organization, ten years ago. Papers were read and discussed by visiting doctors from Washington, D. C., Richmond, Harrisonburg and Winchester, and the meeting was a most interesting one.

The Southwestern Virginia Medical Society

Held its semi-annual meeting in Radford, March 20, and 21, with the usual good attendance and interest which this Society attracts. A banquet was held on the opening evening and on the second day, the staff of St. Albans Sanatorium tendered a luncheon to the members and visitors. The program included a number of interesting papers, among them a symposium on Diabetes, which was discussed by Drs. K. D. Graves, F. H. Smith, Gibson Davis, and H. H. Trout. The next meeting is to be held at Marion on September 11 and 12. Dr. S. S. Gale, and Dr. E. G. Gill, both of Roanoke, are president and secretary-treasurer, respectively. The following new members were elected: Drs. Chas. A. Young and Booker Lee, Roanoke; A. E. Holmes, Mt. Regis Sanatorium, Salem; Nat. Copenhaver, Bristol; J. B. McKee, Plasterco; S. A. Tuck, Elliston; J. Gibson Davis, Christiansburg, and T. C. Harris, Radford.

The Russell County Medical Society

Met April 10, with Dr. C. B. Greear, Honaker, the president, in the chair. There was a good attendance and the papers read by Dr. D. B. Lepper, on Pertussis, and by Dr. C. B. Greear, on Backaches of Known and Unknown Origin, were freely discussed by the members. It was resolved that the Society should hold its June meeting at Castlewood, and that Drs. O'Connor Cox, J. W. Greear and L. W. Newland, all of St. Paul, Va., be invited to attend the meeting. The Tazewell County doctors are to be invited to attend the September meeting at Lebanon. The fee of $1 was assessed each member. The secretary, Dr. David B. Lepper, of Lebanon, was instructed to invite all eligible doctors in the county to join.

Russell County doctors report health conditions somewhat distressing when viewed from a remunerative standpoint. The progressive health officer of the County, Dr. Lepper, reports that there have been but few cases of typhoid for the year to this time.

The South Piedmont (Va.) Medical Society,

At its meeting held in Lynchburg, April the 15th, elected the following officers for the ensuing year: President, Dr. Ray A. Moore, Phenix; vice-presidents, Drs. F. O. Plunkett, Lynchburg, C. L. Bailey, Danville, J. D. Hagood, Scottsburg and L. H. Hoover, Clarksville; secretary-treasurer, Dr. George A. Stover (re-elected), South Boston. This meeting was well attended and a number of interesting papers were presented.

The Virginia Society of Oto-Laryngology and Ophthalmology

Held its fifth annual meeting in Lynchburg, April 30, with a large attendance and much interest was manifested in the work of the Society. Dr. J. A. White, Richmond, presided

and Dr. E. U. Wallerstein, Richmond, was in his accustomed place as secretary. Eleven new members were admitted, bringing the total membership to seventy. The invited guests, Dr. Ross H. Skillern, of Philadelphia, and Dr. Harry Friedenwald, Baltimore, gave most instructive and interesting papers. The program included a number of papers of merit, among them a symposium on tonsillectomy, which was discussed by Drs. Clifton Miller and James Morrison. Between the morning and afternoon sessions, the Lynchburg members tendered the visitors a luncheon at the Oakwood Country Club. It was decided to hold the next meeting in Winchester, during apple-blossom season in early May, and the following officers were elected: President, Dr. James Morrison, Lynchburg; vice-president, Dr. H. S. Hedges, Charlottesville; secretary-treasurer, Dr. E. U. Wallerstein (re-elected), Richmond.

Dr. J. L. Alexander, Staunton.
Dr. A. F. Bagby, Richmond.
Dr. K. S. Blackwell, Richmond.
Dr. E. C. Bryce, Richmond.
Dr. A. A. Cannaday, Roanoke.
Dr. R. F. Compton, Charlottesville.
Dr. F. M. Dillard, Alexandria.
Dr. C. S. Dodd, Petersburg.
Dr. John Dunn, Richmond.
Dr. Courtney Edmond, Clifton Forge.
Dr. Meade Edmunds, Petersburg.
Dr. Thomas W. Edmunds, Danville.
Dr. M. R. Faville, Roanoke.
Dr. Guy Fisher, Staunton.
Dr. C. A. Folkes, Richmond.
Dr. C. H. Fowlkes, Richmond.
Dr. J. R. Garrett, Roanoke.
Dr. E. T. Gatewood, Richmond.
Dr. E. G. Gill, Roanoke.
Dr. W. W. Gill, Richmond.
Dr. James R. Gorman, Lynchburg.
Dr. F. M. Hanger, Staunton.
Dr. H. S. Hedges, Charlottesville.
Dr. Homer Henkel, Staunton.
Dr. Emory Hill, Richmond.
Dr. W. S. Hodnett, Richmond.
Dr. Marshall H. Hood, Portsmouth.
Dr. T. E. Hughes, Richmond.
Dr. J. S. Hume, Norfolk.
Dr. C. P. Jones, Newport News.
Dr. J. W. C. Jones, Newport News.
Dr. L. Leroy Jones, Portsmouth.
Dr. Francis H. Lee, Richmond.
Dr. W. L. Mason, Richmond.
Dr. S. E. Massey, Roanoke.
Dr. G. M. Maxwell, Roanoke.
Dr. Hunter H. McGuire, Winchester.
Dr. Frank McNeer, Roanoke.
Dr. Wm. F. Mercer, Richmond.
Dr. Thos. D. Merrick, Richmond.
Dr. Clifton M. Miller, Richmond.
Dr. E. R. Miller, Harrisonburg.
Dr. R. E. Mitchell, Richmond.
Dr. W. C. Moomaw, Petersburg.
Dr. James Morrison, Lynchburg.
Dr. Wm. J. Olds, Front Royal.
Dr. Wm. Patterson, Richmond.
Dr. E. W. Peery, Lynchburg.
Dr. Thos. E. Peery, Bluefield, W. Va.
Dr. F. W. Poindexter, Newport News.
Dr. J. F. Ragland, Petersburg.
Dr. J. B. Rawlings, Staunton.
Dr. David L. Rawls, Suffolk.
Dr. George A. Renn, Norfolk.
Dr. L. A. Robertson, Danville.
Dr. J. T. Shelburne, Critz.
Dr. Harry B .Stone, Roanoke.
Dr. E. L. Sutherland, Charlottesville.
Dr. B. W. Switzer, Lexington.
Dr. Neilson Turner, Richmond.
Dr. George J. Tompkins, Lynchburg.
Dr. E. U. Wallerstein, Richmond.
Dr. F. A. Ward, Suffolk.
Dr. T. B. Weatherly, Richmond.
Dr. Beverly R. Wellford, Richmond.
Dr. Jos. A. White, Richmond.
Dr. Mortimer Williams, Roanoke.
Dr. F. D. Willis, Newport News.
Dr. R. H. Wright, Richmond.
Dr. Chas. A. Young, Roanoke.

The Public Health Association of Virginia

Was held in Richmond, April 22 and 23, with Dr. Powhatan S. Schenck, Norfolk, as president, and Dr. L. J. Roper, Portsmouth, secretary. A number of interesting papers were read and most of the members staid over for the annual meeting of the State Board of Health on the following day. Officers of the Public Health Association of Virginia elected for the coming year are: President, Dr. Wm. S. Keister, Charlottesville; Vice-presidents, Mr. Aubrey H. Straus, State Bacteriologist, Richmond, and Dr. W. R. Culbertson, Norton; secretary-treasurer, Dr. L. J. Roper (re-elected), Portsmouth, and assistant secretary-treasurer, Miss Blanche Webb, head of the King's Daughters' nurses of Norfolk.

The Truth About Medicine

In addition to the articles enumerated in our letter of February 26th, the following have been accepted:

Parke, Davis & Co.:
- Apothesine
- Apothesine Solution
- Apothesine Hypodermic Tablets 0.08 Gm. (1¼ Gr.)
- Apothesine and Adrenalin Hypodermic Tablets
- Apothesine and Adrenalin Hypodermic Tablets (R "B")
- Apothesine and Adrenalin Hypodermic Tablets Cylindrical (for pressure anesthesia)
- Apothesine Ointment
- Pituitrin "S" (Surgical)

E. R. Squibb and Sons:
- Cod-Liver Oil—Squibb

United States Standard Products Co.:
- Acne Vaccine
- Gonococcus Vaccine
- Pertussis (Whooping Cough) Vaccine
- Staphylococcus Combined Vaccine

Streptococcus Vaccine
Typhoid Vaccine
Typhoid Paratyphoid Vaccine Combined
Acne Vaccine Combined
Normal Horse Serum
Diphtheria Antitoxin, Refined and Concentrated
Diphtheria Toxin-Antitoxin Mixture (0.1 L +)
Diphtheria Toxin for Schick Test and Control
Tetanus Antitoxin

NEW AND NONOFFICIAL REMEDIES.

Patch's Flavored Cod-Liver Oil.—Cod-liver oil containing 0.5 per cent of essential oils as flavoring, and having a vitamin potency so that 0.002 Gm. per day is adequate to promote the growth of young albino rats. For discussion of the actions and uses of cod-liver oil, see Useful Drugs. The dose is not more than 4 c.c. (1 fluidrachm) 3 times a day. For children not more than 2 c.c. (30 minims) 3 times a day. E. L. Patch Co., Boston.

Vitalait Culture Bacillus Acidophilus.—A pure culture of bacillus acidophilus in vials each containing about 7 c.c. It contains not less than three hundred million of viable organisms (B. acidophilus) per cubic centimeter at the time of sale. For a discussion of the actions and uses of cultures of B. acidophilus, see Lactic Acid-Producing Organisms and Preparations, Jour. A. M. A., Sept. 8, 1923, p. 831. The usual dosage is the contents of one vial diluted with water and followed by a quantity of sugar of milk. The culture is distributed by the manufacturer only and is sent by mail. The Vitalait Laboratory of California, Pasedena, Calif. (Jour. A. M. A., March 1, p. 717).

Apothesine.—Diethyl-amino-propyl cinnamate-hydrochloride. Apothesine is a local anesthetic of the procaine rather than the cocaine type, that is, it belongs to that type which, while effective for injection anesthesia (especially when combined with epinephrine), is relatively inefficient when applied to mucous membranes. It is rather slower in action than procaine. Its absolute toxicity is less than that of cocaine, but about twice that of procaine. It is employed for infiltration injection, nerve blocking, intraspinal injection, pressure anesthesia, oral administration as a palliative measure, for post operative and persistent vomiting and pain of gastric ulcer. As a local anesthetic, apothesine is used in 0.5 to 2 per cent solution, generally with epinephrine and sterile water or physiological solution of sodium chloride. Apothesine is marketed in substance and also in the following forms: Apothesine solution, 1.5 per cent; apothesine hypodermic tablets, 0.08 Gm.; apothesine and adrenalin hypodermic tablets (apothesine 0.04 Gm.; adrenalin 0.00004 Gm.); apothesine and adrenalin hypodermic tablets (apothesine 0.3 Gm.; adrenalin 0.0003 Gm.); apothesine and adrenalin hypodermic tablets cylindrical (apothesine 0.01 Gm.; adrenalin 0.000025 Gm.); apothesine ointment (apothesine 10 per cent; adrenalin 1:60,000, and menthol 0.5 per cent). Parke, Davis & Co., Detroit. (Jour. A. M. A., March 8, 1924, p. 793).

Butesin Picrate.—Trinormalbutylparaminobenzoatedinitrophenol.—A compound consisting of one molecule of trinitrophenol (picric acid) and three molecules of normal butyl ester of 4-aminobenzoic acid. Butesin picrate combines the anesthetic action of butesin with the antiseptic properties of trinitrophenol (picric acid). An aqueous solution of 1:1,400 produces immediate and complete anesthesia of the eye, which lasts from ten to twenty minutes. Butesin picrate is used in the treatment of burns, ulcers and other denuded, painful lesions of the skin. For use, a one per cent butesin ointment is supplied by the manufacturer. The Abbott Laboratories, Chicago.

Normal Horse Serum.—A normal horse serum (see New and Nonofficial Remedies, 1923, p. 281), marketed in packages of one syringe containing 10 c.c.; also in packages of one syringe containing 20 c.c. United States Standard Products Co., Woodworth, Wis. (Jour. A. M. A., March 15, 1924, p. 876).

Dibromin.—Dibromobarbituric acid.—Dibromin is an antiseptic and germicide proposed for use in solution as an irrigating fluid and wet dressings, for flushing cavities, irrigating infected wounds and for saturating gauze packings. Dibromin is claimed to be practically free from irritating or toxic properties in the concentrations required for therapeutic use. Solutions of 1:10,000 (6 grains to one gallon) or stronger are used. Dibromin is marketed in six grain capsules. Parke, Davis & Co., Detroit.

Acne Vaccine.—An acne vaccine (see New and Nonofficial Remedies, 1923, p. 302), marketed in packages of one 10 c.c. vial, each c.c. containing 40 million killed bacteria. United States Standard Products Co., Woodworth, Wis.

Gonococcus Vaccine.—A gonococcus vaccine (see New and Nonofficial Remedies, 1923, p. 304), marketed in packages of one 10 c.c. vial, each c.c. containing 1,000 million killed gonococci. United States Standard Products Co., Woodworth, Wis.

Pertussis (Whooping Cough) Vaccine.—A pertussis bacillus vaccine (see New and Nonofficial Remedies, 1923, p. 308), marketed in packages of one 10 c.c. vial, each c.c. containing 3,000 million killed pertussis bacilli. United States Standard Products Co., Woodworth, Wis.

Typhoid Vaccine.—A typhoid vaccine (see New and Nonofficial Remedies, 1923, p. 314), marketed in packages of three 1 c.c. vials, containing 500 million, 1,000 million and 1,000 million killed typhoid bacteria, respectively. United States Standard Products Company, Woodworth, Wis.

Typhoid Paratyphoid Vaccine (combined).—A typhoid vaccine (see New and Nonofficial Remedies, 1923, p. 314), marketed in packages of three 1 c.c. vials, the first dose containing 500 million killed typhoid bacteria, 375 million killed paratyphoid A and 375 million killed paratyphoid B bacteria, the second and third doses each containing 1,000 million killed typhoid bacteria, 750 million killed paratyphoid A bacteria and 750 million killed paratyphoid B bacteria. United States Standard Products Co., Woodworth, Wis. (Jour. A. M. A., March 22, 1924, p. 967).

Staphylococcus Combined Vaccine.—A staphylococcus vaccine (see New and Nonofficial Remedies, 1923, p. 310), marketed in packages of one 10 c.c. vial, each c.c. containing 1,000 million killed staphylococcus albus and 1,000 million killed staphylococcus aureus. United States Standard Products Co., Woodworth, Wis.

Streptococcus Vaccine.—A streptococcus vaccine (see New and Nonofficial Remedies, 1923, p. 312), marketed in packages of one 10 c.c. vial, each c.c. containing 400 million killed streptococci. United States Standard Products Co., Woodworth, Wis.

Acne Vaccine Combined.—A mixed bacterial vaccine (see New and Nonofficial Remedies, 1923, p. 318), marketed in packages containing one 10 c.c. vial, each c.c. containing 40 million killed acne bacilli and 1,000 million killed staphylococcus albus. United States Standard Products Co., Woodworth, Wis.

Diphtheria Antitoxin, Refined and Concentrated.—A refined and concentrated diphtheria antitoxin (see New and Nonofficial Remedies, 1923, p. 283), prepared according to a modification of Banzhaf's method, marketed in syringes containing 1,000, 3,000,

5,000, 10,000 and 20,000 units, respectively. United States Standard Products Co., Woodworth, Wis.

Diphtheria Toxin-antitoxin Mixture, 0.1L+.—A diphtheria toxin-antitoxin mixture (see New and Nonofficial Remedies, 1923, p. 284), each c.c. constituting a single dose and marketed in packages of 3 vials, each containing 1 c.c.; in packages of 30 vials, each containing 1 c.c. and in packages of one vial containing 30 c.c. United States Standard Products Co., Woodworth, Wis.

Diphtheria Toxin for Schick Test and Control.—A diphtheria immunity test (see New and Nonofficial Remedies, 1923, p. 323), marketed in packages containing a vial with undiluted diphtheria toxin and physiological solution of sodium chloride for dilution. As a means of control there is also supplied diphtheria toxin which has been heated to destroy the exotoxins. The product is marketed in packages containing an amount sufficient for fifty tests; also in packages containing an amount sufficient for one hundred tests, but the strength of the toxin is such that the dose is 0.1 c.c. United States Standard Products Co., Woodworth, Wis.

Tetanus Antitoxin.—A concentrated tetanus antitoxin (see New and Nonofficial Remedies, 1923, p. 284), prepared according to the Banzhaf method. Marketed in syringes containing 1,500, 5,000 and 10,000 units. United States Standard Products Co., Woodworth, Wis. (Jour. A. M. A., March 29, 1924, p. 1047).

PROPAGANDA FOR REFORM.

Citrophan.—This is a "fat cure," exploited to the medical profession and the public by the Gotham Corporation, New York City. The only statement bearing on the identity of Citrophan which is made is the claim that it is "a new organic iodin compound." The claims made for Citrophan are many and various, back of all of them is the fundamental thesis: "Science has found that the chief cause of obesity lies in the development of alcohol in the digestive tract brought about by the action of yeast bacteria—taken into the stomach in improperly baked bread—and on raw fruits and vegetables." This claim is unsupported by scientific work. The A. M. A. Chemical Laboratory reports that Citrophan is sold in the form of tablets ranging in weight from about 4½ grains to more than 7 grains. Analysis indicated that the chief medicinal ingredient was tetraiodophenolphthalein. Sugar of milk, starch, vegetable tissue and traces of an acid insoluble substance (probably talc) were found; also two per cent of an unidentified organic substance. Quantitative determinations showed the composition of citrophan to be: tetraiodophenolphthalein 40 per cent., sugar of milk 52 per cent., ash (including talc) 3 per cent., starch and undertermined 5 per cent. About twenty-five years ago, tetraiodophenolphthalein, the chief medicinal ingredient of citrophan, was exploited under the name "Nosophen," as an external and internal antiseptic. It has never attracted much attention in this country. Fangarine is sold (in the form of tablets) along with citrophan. These the A. M. A. Chemical Laboratory found to contain phenolphthalein as its medicinal ingredient. It is evident that citrophan is not a new discovery as claimed, and there is no evidence that citrophan will reduce weight, except perhaps by disturbing the digestive functions. (Jour. A. M. A., March 1, 1924, p. 734).

Sodium Morrhuate in Tuberculosis.—Sodium morrhuate is the sodium compound (soap) of the fatty acids obtained from cod-liver oil. Its use in tuberculosis has been advocated, but like other preparations proposed for the treatment of this disease, it has not been shown to have value. The reported trials make its lack of value probable. Sodium morrhuate has not been admitted to New and Nonofficial Remedies. (Jour. A. M. A., 1924, p. 813).

The Rectal Administration of Arsphenamin.—The intravenous administration of arsphenamin requires some skill, especially in children and in the obese in whom the veins are not readily accessible. Attempts have been made, therefore, to develop other methods of securing the effects of the drug. Among these, rectal administration has found most advocates. Manufacturers, ever seeking novelties, have used favorable reports to market suppositories of arsphenamin. In 1920, the Council on Pharmacy and Chemistry published a report on supsalves stating that the evidence for the rectal administration of arsphenamin was distinctly unfavorable. At present the medical profession is being circularized by the Swan-Myer Company, in an endeavor to popularize the rectal administration of arsphenamin in the form of suppositories sold as arsphenoids. It is opportune, therefore, that Littman and Hutton, at the request of the Therapeutic Research Committee of the Council on Pharmacy and Chemistry, present a critical review of the literature and the result of clinical trials of the rectal use of arsphenamin. Since most advocates of the rectal administration of arsphenamin stress its importance in the case of infants, the investigators carried out their study with children with active symptoms of congenital syphilis. They used arsphenamin given by enteroclysis and also the supsalves suppositories. The authors conclude that the clinical results were too feeble as compared with the intravenous or intramuscular method to warrant favorable consideration of the rectal administration. The investigators hold, moreover, that neoarsphenamin and sulpharsphenamin are now generally used by the intramuscular route in the treatment of syphilis in infants with results that are above reproach. (Jour. A. M. A., March 15, 1924, p. 888).

Horse Hair and Horse Hair Allergens.—To prepare horse hair and horse dander allergens, 10 gm. of the finely divided hair or dander are extracted with 0.2 per cent sodium hydroxid solution. Hydrochloric acid is added to the filtered solution until the isoelectric point of the dissolved protein is reached. The precipitate is collected on a filter, washed with acetone and dried. To the dried precipitate are added 88 c.c. of hundredth-normal sodium hydroxid and the mixture is shaken thoroughly at frequent intervals for twenty-four hours. To this, 12 c.c. absolute alcohol is added. The mixture is shaken at intervals for twenty-four hours. It is then centrifugalized and the supernatant fluid drawn off. This liquid represents 10 parts epidermal protein in 100 parts of solvent. This 1:10 solution is used to prepare weaker solutions by dilution with physiological solution of sodium chlorid. As a preservative, 0.5 per cent. cresol is added. (Jour. A. M. A., March 22, 1924, p. 991).

Canine Rabies Virus.—Results of the single injection method against rabies in dogs have been reported from different sources. The U. S. Bureau of Animal Industry has been conducting experimental work on this subject and results indicate that the prophylactic vaccination has value which, however, is determined to a certain extent by the virus to which the animal is exposed. The use of the single injection vaccine in animals that have been bitten is believed to be unwarranted at this time. The

Hogyes' treatment of six doses, in animals bitten, has been used successfully for some time and the failures reported have been small. The use of Hogyes' vaccine, together with the cauterization of the wound and the placing of the animal in quarantine for six months to a year, seems to be the best method of treating such cases. (Jour. A. M. A., March 29, 1924, p. 1066).

Allonal-Roche.—Allonal (The Hoffmann La Roche Chemical Works, New York) is "Allylisopropylbarbituric acid—Phenyl-dimethyl dimethylamino pyrazolon." In the literature first sent out, it was stated to be a "compound" made by "chemically uniting allyl-isopropylbarbituric acid (37.5%) with phenyl di-methyl-dimethyl-amino-pyrazolon (52.5%) amidopyrin, i. e., in molecular proportions 1:2." Examination of Allonal tablets made in the A. M. A. Chemical Laboratory last year showed that, in water, the substance behaved as a mixture of allyl-isopropyl barbituric acid and amidopyrin and not as a compound. Furthermore, the percentages of the ingredients given were not in accord with the statement that they were in molecular proportions. The published reports on its use are favorable, but they apparently include no observations with controls. The evidence thus far available does not seem to prove (1) that "Allonal" possesses advantage over a mixture of allyl-isophopyl barbituric acid and amidopyrin, or even over one or other of its ingredients alone; (2) that the administration of allyl-isopropyl barbituric acid and amidopyrin in fixed proportion is desirable. The product has not been accepted for New and Nonofficial Remedies. (Jour. A. M. A., March 29, p. 1066).

Book Announcements

Operative Surgery. Covering the Operative Technic Involved in the Operations of General and Special Surgery. By WARREN STONE BICKHAM, M. D., F. A. C. S., New York City, Former Surgeon in charge of General Surgery, Manhattan State Hospital, New York; Former Visiting Surgeon to Charity and to Touro Hospitals, New Orleans In 6 octavo volumes totaling approximately 5,400 pages with 6,378 illustrations, mostly original, and separate Desk Index Volume. Vol. III. contains 1,001 pages with 1,249 illustrations. Philadelphia and London. W. B. Saunders Company. 1924. Cloth, $10 per volume. Sold by subscription only Index Volume free.

This, the fourth edition of this work, in six volumes, is not an instance of evolution, nor of a long stride forward, but of a leap to the front. Each of the preceding editions was in one volume. The author saw the need for something bigger and responded. The scope of the work is greatly enlarged. Three hundred and fifty pages are devoted to the following: Preparations for Operations including Preparation of the Patient, Surgical Anesthesia and Analgesia, Conduction of Operations, General Operative Technics and After-Care of the Operative Patient. These subjects are well handled by the author and their importance in a work on operative surgery needs no comment. The chapter on Surgical Anesthesia and Analgesia would make a valuable book alone.

We felicitate the author on his portrayal of the qualifications that make a good surgeon. The chief operations on approximately all the organs and tissues of the body are described.

Each operation is discussed under several side headings, providing detail. There is a chapter on artificial limbs which is an asset to the work. The illustrations (over 6,300 diagrams, drawings and photographs) are well executed.

J. W. Henson, M. D.

Social Control of the Feebleminded. A Study of Social Programs and Attitudes in Relation to the Problems of Mental Deficiency. By STANLEY P. DAVIES, Ph. D., Executive Secretary, Committee on Mental Hygiene, N. Y. State Charities Aid Association. Published by the National Committee for Mental Hygiene, Inc., 370 Seventh Avenue, New York City, 1923. 8vo. Paper. 222 pages. Price **$1.25.**

The Circulatory Disturbances of the Extremities, Including Gangrene, Vasomotor and Trophic Disorders By LEO BUERGER, M. A., M. D., New York City. Philadelphia and London. W. B. Saunders Company. 1924. 8vo of 628 pages with 192 illustrations, five in colors. Cloth, $8.50 net.

Pediatrics. By Various Authors. Edited by ISAAC A. ABT, M. D., Professor of Diseases of Children, Northwestern University Medical School, Chicago, etc. Philadelphia and London. W. B. Saunders Company. 1924. Volume III., 8vo, 1,051 pages with 223 illustrations. Set complete in eight octavo volumes, totalling 8,000 pages with 1,500 illustrations, and separate Index Volume free. $10.00 per volume. Sold by subscription.

What Every Mother Should Know About Her Infants and Young Children. By CHARLES GILMORE KERLEY, M. D., Consulting Pediatrist, Fifth Avenue Hospital and the Babies' Hospital, New York City. Second Edition Revised. Paul B. Hoeber, Inc., New York. 1924. Paper. 12mo. 103 pages. Price 50 cents net.

National Health Heries. Edited by the NATIONAL HEALTH COUNCIL. Funk and Wagnalls Company. New York and London. 1924. 16mo, full flexible fabrikoid. Average number of words per volume 18,000. Price per volume 30 cents. Complete set of 20 volumes $6.00.

In April issue we announced publication of the first five books of this series. Five more have been put out by the publishers. These are entitled: *The Quest for Health*, which deals with Where It Is and Who Can Help Secure It; *The Human Machine*, on How Your Body Functions; *Food for Health's Sake*, telling What to Eat; *The Young Child's Health;* and *Taking Care of Your Heart*. These are all in the same readable style as the first five booklets.

Virginia Medical Monthly

FOUNDED BY LANDON B. EDWARDS, M. D., APRIL, 1874.
OWNED BY THE MEDICAL SOCIETY OF VIRGINIA.
PUBLISHED BY THE PUBLISHING COMMITTEE.

A. G. BROWN, Jr., M. D., Chairman, Richmond, Va.

B. R. TUCKER, M. D., Richmond, Va.
P. W. HOWLE, M. D., Richmond, Va.
E. L. KENDIG, M. D., Victoria, Va.
A. L. GRAY, M. D., Richmond, Va.

ALEX. G. BROWN, Jr., M. D., Editor.

AGNES V. EDWARDS, Business Manager and Secretary-Treasurer.

All correspondence regarding editorial matters, articles, advertisements, subscription rates, etc., should be addressed to the Journal.

All advertisements are received subject to the approval of the Council on Pharmacy and Chemistry of the American Medical Association.

Subscription Price: $2.00 per annum in advance.
Single Copies 20c.

Vol. 51. MAY, 1924 No. 2

Editorial

Comments on Endocarditis.

What are the causes of simple endocarditis? Rheumatism: Fifty-three and three-tenths per cent of 1,750 cases of rheumatism, according to Norris-Landis, develop acute endocarditis. Tonsillitis, recognized and unrecognized, is a common cause of acute endocarditis. Any of the acute infectious diseases may cause acute endocarditis. Acute endocarditis is invariably a secondary involvement. Although, in a few instances, one may be unable to discover a primary focus, it is generally agreed that it exists.

The left ventricle is usually affected; the mitral valves are the most commonly affected, the auricular side of the mitral valves show the inflammatory changes. Following the shedding of the endothelial and subendothelial cells, fibrin is deposited, making small bead-like excresences. The growth may be large enough to prevent closure of the valves or obstruct the blood stream. Bacteria are found in the fibrinous growths in more malignant types of endocarditis. Few cases of endocarditis of any considerable clinical degree, fail to be accompanied by a more or less myocardial change. This may be general or limited. Disturbance of rhythm, rate and cardiac size bespeak myocardial involvement.

The microscopic appearance of various forms

*Fig. 1—Acute infective mitral and mural endocarditis. The mitral valve is covered with large vegetations. Several of the chordae tendineae have been destroyed by ulceration, only short unattached stumps remaining. Vegetations are also seen on the mural endocardium. (Specimen from the Pennsylvania Hospital).

*Reproduction of illustration in "Diseases of the Chest and the Principles of Physical Diagnosis," 2nd edition, by Norris and Landis, p. 701.

†Fig. 2—Acute infective endocarditis. Showing extensive ulceration of the aortic valves. About the center of the aortic orifice a match-stick projecting from a thrombotic mass indicates the course of the perforation in the aortic leaflet. (Specimen from the Philadelphia Hospital).

†Reproduction of illustration in "Diseases of the Chest and the Principles of Physical Diagnosis," 2nd edition, by Norris and Landis, p. 702.

of endocarditis may well claim attention. The endothelial cells swell and, losing vitality, exfoliate. The denuded area is covered with agglutinated blood platelets and the adjacent endothelium proliferates, producing a verruca. This is the typical lesion of rheumatic endocarditis. In acute bacterial endocarditis, there is purulent infiltration with necrosis and ulceration. There results a large blood platelet mass.

In subacute streptococococcus and bacillus influenza endocarditis, while small, the verruca are larger than in the rheumatic form. The process spreads by continuity. In the muscularis are found polymorphonuclear leukocytes; in rheumatic cases, Aschoff bodies may be found. Pericarditis is found in acute bacterial endocarditis, while in rheumatc endocarditis we have pericarditis without purulent exudate. In subacute endocarditis we do not expect pericarditis.

Embolic phenomena dramatically characterize, at times, the course of endocarditis of bacterial origin. Petechiae, Janeway lesions, Osler nodes, gross embolism, and purpura, are a few of the names given to various lesions. Showers or crops of skin lesions may appear; or gross embolic lesions may appear in lone or isolated instances.

For a descriptive summing up of the varieties, and for a general statement of the causes, the pathology, the course, of the several types, we may give an assembly of the synonyms used by authors of text-books and in current literature. We find under the head of acute endocarditis: (1) simple vegetative and benign endocarditis; (2) thrombo-endocarditis superficialis; (3) endocarditis verrucosa: (4) endocarditis simplex, endocarditis of rheumatism, tonsillitis, chorea, scarlet fever, measles, gonorrhea, pneumonia, and other infectious diseases. It is probable there are cases which lie between each division. Mixed etiology and mixed pathology give irregular symptomatology. There may be intermediate types.

Then, under the head of acute infectious endocarditis, we find such synonyms as (1) septic, ulcerative or malignant endocarditis, (2) thrombo-endocarditis septica, (3) endocarditis ulcerosa, or pernicious endocarditis. This type of endocarditis is described by these synonyms: in these terms are written its pathology and prognosis. The etiology is found in the implantation, proliferation of bacteria and pathologic processes resulting therefrom in the heart lining. Streptococci, pneumococci, staphylococci and gonococci, with streptococci predominating, are the chief causative micro-organisms.

Then, under the term subacute infectious endocarditis, we find the following tell-tale synonyms: (1) subacute bacterial endocarditis; (2) subacute streptococcus endocarditis; (3) chronic malignant endocarditis; (4) chronic ulcerative endocarditis; (5) endocarditis lenta. In ninety-five per cent of cases of subacute infective endocarditis, the etiologic factor is an-hemolytic streptococcus (streptococcus viridans); the remaining cases are due to bacillus influenza and the gonococcus.

When we read the synonyms, as given here, we read the thought and writing on this subject of the profession as a whole. Each title attempts to bring forward a leading characteristic type or form.

Pathology of endocarditis centers in the left ventricle. The mitral leaflets as before stated, are affected most frequently. It is thought that this is true because there is greater tension in the closure of these valve-leaflets and because these leaflets have a wider excursion in the blood current. In acute infective endocarditis, the mitral and aortic valves, alone and together, are most frequently the site of infection and morbid processes.

The symptom-characterization in endocarditis may be discussed at considerable length but, to epitomize for the purposes of review, one may give the following as the chief clinical events:

In the simple form, subjective symptoms do not point emphatically to the cardiac lesion, although there may be fever, leucocytosis, cardiac oppression and tachycardia. On examination, systolic murmurs at the apex and along the base may be heard: even at the aortic area systolic murmurs may be heard. As pathology advances in the endocardium, cardiac signs become more marked and signs of embolism may dramatically appear, throwing into the picture, brain symptoms, kidney symptoms, heart symptoms, spleen symptoms and skin symptoms. The size of the heart increases, the rate of the heart increases, the rhythm of the heart becomes irregular, murmurs characterize valve-action, the sounds become altered, and friction signs may appear.

In the severe or malignant forms, the symptoms are more stormy at the onset and more malign in progress and severity. High fever,

chills, sweats, joint pains, anemia, tendon-muscle and skin embolic phenomena occur. Hemorrhagic spots in the conjunctiva, retinal and mucous membrane, erythema and petechia appear.

The heart, delirious in action, shows systolic and diastolic murmurs occurring in the left side; and, later, irregularity and intermittency characterize its action. Insufficiency resulting from myocarditis and dilatation may appear. The shades of variety which endocarditis may take, owing to type or mixture of type of symptoms and complications, have caused clinical observers to divide the symptomatology into (a) septic type with its rigor, sweats, irregular fever, and bacteria, (b) typhoid type with its more continuous low fever, prostration, mental stupor, sweats and petechiae, (c) cardiac type with its old heart lesion and acute symptoms imposed on it, (d) cerebral type with its brain symptoms playing the leading part in clinical course, (e) chronic or recurrent type with its milder but returning fevers, chills, sweats, weakness and heart signs.

References.

1. Norris-Landis, "Diseases of the Chest and Principles of Physical Diagnosis," 2nd Ed., p. 697.
2. Libman, J. A. M. A., March 24, 1923, p. 815, and other papers.
3. Osler, Oxford Press, Barker and others.

News Notes

The Clinical Congress of American College of Surgeons, Virginia-West Virginia Section,

Held its annual meeting in Richmond, May 2nd and 3rd, Dr. J. Shelton Horsley, of Richmond, presiding. A number of interesting clinics were held at St. Elizabeth's, Grace, Johnston-Willis, Stuart Circle, St. Luke's, Retreat for Sick, and Memorial hospitals. Business and scientific sessions were held in the afternoons, and a public meeting was held on Friday evening. The speakers on this occasion were Dr. M. T. MacEachern, and Dr. Allan Craig, both of Chicago, and associate directors of the American College of Surgeons, Dr. Douglas Freeman, Richmond; Rev. C. B. Moulinier, S. J., Milwaukee, President of the Catholic Hospital Association, and Dr. John Osborn Polak, of the Long Island College Hospital, Brooklyn; Drs. Robert C. Bryan, W. L. Peple, Chas. R. Robins, and Paul W. Howle, formed the committee on local arrangements.

In the Verginia Section, Dr. Clarence Porter Jones, Newport News, was elected chairman; Dr. J. E. Rawls, Suffolk, secretary, and Dr. Hugh H. Trout, Roanoke, counselor.

In the West Virginia Section, Dr. G. C. Schoolfield was elected chairman; Dr. J. E. Cannaday, secretary, and Dr. H. G. Nicholson, counselor. All of these officers are of Charleston.

Staunton Meeting, Medical Society of Virginia.

The Augusta County members are actively at work for the success of our meeting in Staunton, October 14-17. The new hotel—the Stonewall Jackson—is to be headquarters. It is stated that there will be ample accommodations for those who attend, but it is wise to make reservations in advance—the sooner, the better.

As this is the first meeting in the northwest section of the State since the one at Hot Springs in 1897, and the first in Staunton in over fifty years, let's all pull together for a big crowd!

Many county societies will be holding meetings, now that roads and weather make transportation more pleasant, and we suggest that each society appoint its delegate at its next meeting. Each society is entitled to at least one delegate, whether you have two or thirty-five members; the larger societies are entitled to one delegate for every thirty-five members or major fraction thereof. As soon as appointments are made, please send names of your delegates to the office of the Medical Society of Virginia, 104½ West Grace Street, Richmond, Va.

Scarlet Fever Receives Death Sentence.

By means of a test devised by Drs. George F. and Gladys H. Dick, of Chicago, it is believed that a hopeful solution has been made with regard to the scarlet fever problem. The methods used are analogous to those of the Schick test and the use of toxin-antitoxin in diphtheria. It is stated that inoculation is made through the arm and, if the patient is susceptible to scarlet fever, reaction is shown by the following day. In this case, the toxin is used in increased quantities. The new test was described in a recent issue of the *Journal of the A. M. A.* Drs. Dick state that "The therapeutic value of the antitoxin can be deter-

mined only when the results of its use in a large series of carefully controlled cases are available."

This research work has been made possible by a large donation from Harold McCormick, of Chicago, who lost a child as a result of scarlet fever. The work is done in the John McCormick Institute for Infectious Diseases, in Chicago.

Married.

Dr. Hume Lee Horton, Apex, N. C., and Miss Lucille Audrey Barnes, Richmond, April 17. Dr. Horton was a member of last year's graduating class at Medical College of Virginia.

Dr. William Lawrence Gatewood, formerly of Toano, Va., but now of New York City, and Miss Virginia Conway DeJarnette, Richmond, April 12.

Dr. E. W. Perkins,

Petersburg, Va., is spending some time in New York City, where he is taking special post-graduate work.

The National Board of Medical Examiners

Is to hold examinations on June 19, 20 and 21, for Part I., and an June 20 and 21 for Part II. All applications for these examinations must be made on or before May 15, 1924.

Further information may be obtained from the secretary, Dr. J. S. Rodman, 1310 Medical Arts Building, Philadelphia, Pa.

Medical Society of the State of North Carolina.

The meeting held in Raleigh, the middle of April, was the most largely attended in the history of the Society, more than six hundred being registered. Dr. J. V. McGougan, Fayetteville, presided. Senator Royal S. Copeland, of New York, delivered an excellent address at the public meeting. Pinehurst was selected as the next place of meeting and Dr. Albert Anderson, superintendent of the State Hospital at Raleigh, was elected president, and Dr. L. B. McBrayer, Sanatorium, was re-elected secretary.

Dr. E. C. Harper,

Recently of Fries, Va., has accepted the position of clinician to the Bureau of Tuberculosis Education with the State Board of Health, and will make his headquarters in Richmond. He succeeds Dr. Herbert R. Edwards, who resigned to accept a position with the National Tuberculosis Association in New York City.

Dr. F. Musgrave Howell,

Recently of Lynchburg, R. F. D. 4, now has his offices at 618 Court Street, that city.

Dr. L. O. Powell,

Seaford, Va., was a recent visitor in Richmond, having come here on business and pleasure combined.

Dr. Emily Gardner,

Who located in Richmond upon completing her internship at a Pittsburgh, Pa., hospital, last year, has accepted the position as assistant director of the Child Welfare Bureau of the State Board of Health of Virginia and will assist in holding clinics in the various counties of this State.

The American Society of Clinical Pathologists

Is to hold its annal meeting in Rochester, Minn., June 5, 6, and 7, under the presidency of Dr. Wm. C. MacCarty of that city. Dr. Ward T. Burdick, of Denver, Col. is secretary.

A "Doctors' Quarter of a Century Club"

Was recently organized in Chattanooga, Tenn., with Dr. Edw. B. Wise as president, and Dr. Frank T. Smith as secretary. This is a local organization, the principal qualification apparently being twenty-five years' of service in the profession.

Doctors Hold Civic Offices in Winchester.

In the recent Democratic primary held in Winchester, Va., Dr. Julian F. Ward was nominated for mayor of that city, and Dr. C. R. Anderson was nominated to the city council.

Dr. Joseph Grice,

Former city bacteriologist of Portsmouth, Va., has been elected by the city school board as medical inspector in the school system, succeeding Dr. E. A. Hatton who died recently. Dr. Grice will serve on a full-time basis, devoting all of his time to the work of the schools.

Dr. Richard W. Fowlkes,

After a service of eighteen months in the Dermatological Section of Vanderbilt Clinic at the College of Physicians and Surgeons, New York City, has opened offices in Professional Building, Richmond, and will limit his work to dermatology and syphililogy. Dr. Fowlkes graduated from the Medical Department of the University of Virginia in 1920, at which time he received appointment as interne at Bellevue Hospital, New York.

The Virginia State Dental Association,

At its annual meeting held last month in Norfolk, elected Dr. A. Hume Sprinkle, of

Staunton, president for the ensuing year, and Dr. W. N. Hodgkin, Warrenton, secretary. Dr. Harry Bear, Richmond, who has been secretary for the past seven years, was made president-elect, which will make him automatically president at the next meeeting. The 1925 meeting will be in Staunton.

Doctor!

Have you "Hygeia"—the layman's health journal—on your office table? You have no better way of educating your patients to "stick to you." It gives them good, wholesome reading, and should educate the public to an intelligent discrimination between the true and false in medicine. It is published monthly by the American Medical Association and is in magazine style, attractively illustrated.

Dr. E. M. Tanner,

Recently of Bramwell, W. Va., is now connected with the staff of the Bluefield Sanitarium, Bluefield, W. Va.

Dr. W. J. Wigington,

Java, Va., upon completion of post-graduate work at the New York Post-Graduate Medical School and Hospital, will locate in Rocky Mount, Va. He expects to be home about June the 1st.

Dr. I. K. Briggs

Returned to his home in South Boston, Va., early in April, after undergoing treatment in Danville, Va., General Hospital for injury to one of his eyes.

Dr. A. C. Byers,

Harrisonburg, Va., was elected president of the Hereford Breeders' Association of Virginia, at its annual meeting recently held in Roanoke.

Dr. E. A. Terrell,

After spending some time in Florida, has returned to his home at Fredericks Hall, Va.

Dr. J. N. Barney,

Fredericksburg, Va., major in the medical section of the Officers' Reserve Corps, has been selected by the War Department as one of the seven reserve officers in the United States to report for duty at Mitchell Field, Long Island, to take a special course of instruction as advanced flight surgeon, in the U. S. Air Service. In the army correspondence course examination of officers, Dr. Barney received the highest grade in the Eightieth Division area. He served in the air service during the World War and spent much time in Texas.

Dr. Barney is to report for service about the middle of May to Mitchell Field and will spend about six weeks taking the flight surgeon's course. This will include instruction at several of the larger New York hispitals.

Dr. and Mrs. Paul Redd,

Of Richmond, have returned from a motor trip to Churchland where they spent the Easter holidays with Dr. James T. Redd who has been ill for several months. While away, they visited Norfolk and Newport News.

Dr. John A. Hornsby Elected Superintendent of the University of Virginia Hospital.

At the April meeting of the Board of Visitors of the University of Virginia, Dr. John A. Hornsby, of Chicago, was elected superintendent of the University of Virginia Hospital. Dr. Hornsby has had wide experience as superintendent or consultant in the organization of hospitals in many sections of the United States, especially in Kansas City, Cleveland, and Chicago. During the World War, he supervised the camp hospitals in this country. For several years he was superintendent of the Michael Reese Hospital in Chicago, and under his administration this hospital grew from one of 60 beds to one of over 500. Dr. Hornsby assumed the duties of the office April 17.

Dr. Hudson Honored.

Employees of the Richmond Bureau of Health tendered a farewell reception to Dr. C. C. Hudson, prior to his departure for his new field of service, at which time Dr. E. C. Levy complimented Dr. Hudson upon his excellent work as city health officer, for the past four years, and presented him with a beautiful silver bowl as a gift from the employees and a pair of silver candlesticks as a gift from himself.

Dr. Hudson entered upon his duties as health officer of Greensboro and Guilford County, North Carolina, on the first of May.

Dr. H. H. Hunter,

Whaleyville, Va., is one of the doctors who will go as delegate to the State Democratic Convention in Norfolk, this month.

Dr. T. Garnett Smith,

Of Elk Garden, Va., has returned home after taking post-graduate work in New York City.

Dr. Roshier W. Miller

Has been re-elected vice-chairman of the City School Board of Richmond, Va.

Surgeon-General Cumming Further Honored.

The U. S. Senate has acted favorably on a

resolution allowing Dr. Hugh S. Cumming, native Virginian, now surgeon-general of the U. S. Public Health Service, to accept decorations from France and Poland for scientific service. It is understood that the ceremonies of bestowal will take place before he starts on his return trip to the United States.

Rotary Officers.

Dr. Emmett H. Terrell has been elected a member of the board of directors of the Rotary Club of Richmond.

Drs. Fred Hodges, Wm. H. Parker and Greer Baughman have been appointed members of committees with the Rotary, for this year.

Student Officers, Medical College of Virginia.

At the annual meeting of the student body of the Medical College of Virginia, Richmond, in April, J. M. Dougherty, of Nickelsville, Va., was elected president of the student body, P. T. Goad, Hillsville, vice-president, and James H. McNeer, Bluefield, W. Va., secretary-treasurer, for the coming session..

Members of Signa XI Society at University of Virginia.

The Society of Sigma XI was recently installed at the University of Virginia for the promotion of scientific research. Among the seven professors and six graduate students elected to membership this year are the following from the medical school: Dr. Harry T. Marshall, Walter Reed, professor of pathology, and Dr. James A. Waddell, professor of pharmacology and toxicology, from the faculty; and Staige Davis Blackford and John Staige Davis, Jr., of University, and Henry W. Patton, Jonesboro, Tenn., from the medical school.

Miss Baylor will Locate in Richmond.

Miss Martha V. Baylor, recently superintendent at St. Luke's Hospital, Richmond, has been appointed by Dr. E. C. Levy, Director of Public Welfare of Richmond, as superintendent of nurses in the Health Bureau of the city, a position recently created. She will enter upon her duties August the 1st. Prior to taking up her new work, Miss Baylor will take a course at Columbia University, New York City.

Is it Time to Renew Subscriptions to Your Magazines?

If so, orders—new or renewal—placed through the office of the Medical Society of Virginia, will have prompt attention and bring in a small revenue. May we have yours?

Post-Graduate Instruction.

The New York Polyclinic Medical School and Hospital is offering a six weeks' course for qualified graduates in medicine from May 19 to June 28, 1924. Information about fees and dates of subsequent courses may be had upon application to the superintendent, at 341-351 West Fiftieth Street, New York, N. Y.

Dr. R. C. Carnal,

Formerly of Virginia, announces that he has purchased Ideal Rest Sanatorium and Hospital, at Orwell, N. Y., and would be glad to have any Virginia doctors visit him there. This hospital was started four years ago with seven beds and has grown until it can now accommodate 125 patients.

Dr. Roderick Dew,

Woodford, Va., who was ill for several weeks at a Richmond hospital, is now much improved and at home again.

Banting Research Fund.

In recognition of the benefit which has accrued to mankind as a result of the discovery and use of insulin in diabetes, the Banting Research Fund has been created (1) to provide further funds for the support of the Banting and Best chair of medical research at the University of Toronto, and (2) to establish a fund for the adequate financial support of such scientific workers as may have proposed definite problems of medical research, and for whom funds are not otherwise available. Such assistance may be given to persons working in the University of Toronto or elsewhere.

Financial arrangements in connection with this fund have been vested in a board of trustees, of which Sir Robert A. Falconer, president of the University of Toronto, is chairman. Subscriptions to the fund will be welcome at any time and should be made payable to the Banting Research Foundation, Toronto, Canada.

Dr. E. M. Gayle,

Recently of Portsmouth, Va., is now located at Morganton, N. C.

Dr. R. W. Paul,

Richmond, announces opening of his offices in Medical Arts Building, this city, for the exclusive practice of proctology.

Dr. J. B. Anderson,

For sometime of Marshall, Va., announces that his post-office is now McLean, Va.

Southern Public Health Laboratory Association.

This Association held its annual meeting in Mobile the last of March. Many problems of interest to public health laboratories were discussed. The session was a very successful one. Mr. Aubrey H. Straus, Director of Laboratories for the State Board of Health, was elected chairman for the ensuing year.

The meeting next year will be held at Memphis.

The American Medical Association

Is to hold its annual meeting in Chicago, June 9-13, under the presidency of Dr. Ray Lyman Wilbur, Stanford University, California. Those contemplating attending should make reservations in hotels of their choice in advance, though ample accommodations are promised for all who attend. Virginia's delegates are Drs. Joseph T. Buxton, J. Allison Hodges, and Southgate Leigh, and it is hoped that many other of our members will find it convenient to attend.

The Medical Association of the Valley of Virginia

Is to hold its semi-annual meeting at Harrisonburg, May 29, under the presidency of Dr. J. M. Emmett, Clifton Forge. Dr. Alex. F. Robertson, Jr., Staunton, is secretary.

The Walter Reed Medical Society

Is meeting at Newport News, Va., May the 14th and 15th. This is the annual meeting of the Society, at which all business is transacted. Col. L. A. Thompson, M. C., National Soldiers Home, is president and Dr. L. E. Stubbs, Newport News, secretary.

Dr. and Mrs. G. A. Arhart,

Amelia, Va., left recently for a stay of several weeks in Florida.

Annual Health Education Conference.

At the invitation of the Massachusetts Institute of Technology, a working conference in Health Education is to be held June 23-28, at Cambridge, Massachusetts. The conference called by the Health Education Division of the American Child Health Association will be limited to 100. Registration must be made in advance. Address Emma Dolfinger, 370 Seventh Avenue, New York City.

Dr. Elisha Barksdale,

Lynchburg, Va., left several weeks ago for observation and clinical study work in some of the larger hospitals of the northern cities, including New York, Boston and Cleveland.

Dr. Elbyrne Gill

Has returned to his home in Roanoke, Va., after a visit to New York.

Dr. George E. de Schweinitz

Has resigned as professor of ophthalmology in the University of Pennsylvania Medical School.

The South Carolina Medical Association,

At its annual meeting in Orangeburg, the middle of April, decided to hold its 1925 meeting in Spartanburg, and elected the following officers; President, Dr. D. M. Crosson, Leesville; vice-presidents, Drs. George H. Bunch, Columbia, L. C. Shecut, Orangeburg, and Chas. J. Lemmon, Sumter. Dr. Edgar A. Hines, Seneca, was re-elected secretary-treasurer.

Dr. Walter E. Vest,

Huntington, W. Va., was recently elected president of the West Virginia Tuberculosis Association, for the ensuing year.

Medical Extension Courses.

A series of twelve lectures and clinics on pediatrics will be given for twelve weeks, beginning June 1, in a number of the North Carolina cities. These are arranged by the extension division of the University of North Carolina, at Chapel Hill.

Dr. Herbert R. Edwards

Recently resigned as clinician to the Bureau of Tuberculosis Education with the Virginia State Board of Health, to accept a position as medical field secretary with the National Tuberculosis Association, with headquarters in New York City.

A Free Clinic for Speech Defects

Is to be run for six weeks this spring and summer by the School of Speech Education, 110 Bay State Road, Boston, Mass. The location cannot now be announced, but those wishing to apply to the free speech clinic may do so now by mail, to above address, from any part of the United States. The application will be kept on file and the case will be called in a certain definite order, according to the way the cilinics are arranged. Send your name and address and state the kind of case, which may be done by postal card.

The American Journal of Physical Therapy

Is perhaps the latest periodical to enter the medical field. It is to be published monthly

by The Professional Press, Inc., 17 N. Wabash Avenue, Chicago, at $2 per annum in the United States. Dr. Charles R. Wiley, of Chicago, editor, has a number of associate editors working with him. The journal is to be devoted to the various branches of physical therapy, with contributions and clinical material from authorities in its line. The advertising pages are to conform to the reguirements of the Council on Pharmacy and Chemistry of the American Medical Association.

Dr. Thomas P. West

Has been elected a charter member of the Rotary Club just organized in Bedford, Va.

The University of Virginia Hospital,

Charlottesville, in its annual report for year ending June 30, 1923, shows an excellent amount of work done at that institution. The present capacity of the hospital is only 200 beds, but at times the patients have exceeded that number. During the year there were 4,684 admissions to the hospital and 7,487 visits were paid in the out-patient department.

The American Surgical Association,

At its meeting held in Baltimore, in April, Dr. George W. Crile, Cleveland, presiding, elected Dr. Albert J. Ochsner, Chicago, president, and re-elected Dr. Robert B. Greenough, Boston, secretary.

The American Association for the Study and Cure of Cancer

Will hold its annual meeting in Chicago, June 11, under the presidency of Dr. L. Duncan Bulkley, of New York. Members of the State organizations interested in wiping out the scourge of cancer are invited to join.

Reappointed Commissioner of Health.

Dr. Ennion G. Williams has been reappointed by Governor Trinkle as Commissioner of Health of Virginia for another period of four years, beginning July 1, 1924.

For Sale.

Spencer microscope, operating chair-table, instrument case, instruments and up-to-date medical books. For information, write Mrs. John Parish, Smithfield, Va.—(Adv.)

Physician Wants

Practice in small town on railroad. Will consider partnership or whatever goes with practice. Address Box 132, Sprigg, West Virginia. (Adv.)

For Sale.

Doctor retiring from private work wishes to dispose of new equipment consisting of operating table, scales, sterilizer, cabinet, floor lamp, etc. Will sell as lot or by piece.

Would also be glad to sub-let office in central location in Richmond. Apply to No. 335, care this journal. (Adv.)

Obituary

Dr. Edward Julian Moseley,

A charter member of the Medical Society of Virginia, died at his home in Richmond, April 22. He was born in Chesterfield County, Virginia, eighty-six years ago and, after attending Hampden-Sidney College and the University of Virginia, studied medicine at the University of the City of New York, from which he graduated in 1860. He served as surgeon with the Chesterfield County troops throughout the war between the states and later located in Richmond for the practice of his profession. He was a beloved and honored member of the profession and engaged in active practice in this city for over fifty years, retiring about seven years ago. Dr. Moseley was a prominent Mason. He is survived by three children, one of them being Dr. E. J. Moseley, Jr., of this city.

Dr. William S. Gordon,

Another prominent physician of Richmond, died at his home in this city, April 24, after an illness of two years. Dr. Gordon was born in Raleigh, N. C., in 1858, but had spent practically his entire life in this city. He studied medicine at the Medical College of Virginia, from which he graduated in 1879, later taking special courses at Jefferson Medical College and the University of Pennsylvania. He had been a member of the Medical Society of Virginia since 1886, was an ex-president of the Richmond Academy of Medicine, and was for a number of years physician to the City Jail. He was one of the founders of the University College of Medicine and, upon consolidation of that school with the Medical College of Virginia, became one of the professors in the combined schools. At the time of his death, Dr. Gordon was emeritus professor of medicine in the Medical College of Virginia. He was affiliated with a number of medical organizations. Dr. Gordon is survived by his wife, mother, two daughters, aud a large family connection.

Dr. Hugh Benjamin Mahood,

For many years a prominent physician of Emporia, Va., died suddenly April 24, while attending a patient in that place. He was a native of Petersburg, Va., and fifty-three years of age. Dr. Mahood graduated from the Medical College of Virginia in 1899 and became a member of the Medical Society of Virginia in 1904. He was a World War veteran and an active member of Southside Virginia Medical Association. He is survived by his wife.

Resolutions Adopted by Greenesville County Medical Association.

Dr. Hugh Ben Mahood having died April 25, 1924, and he being a member of the Greenesville County Medical Association, we desire to place on record some appreciation of his life as man and physician.

Be it Resolved, That in the death of Dr. Mahood this organization has sustained a loss of one of its most valuable members. As a member of this body he, by his unfailing courtesy, helpful spirit and strength of intellect, won the respect and affection of his associates. To his profession he devoted his all, there being no work too hard, no personal sacrifice too great for him to make to alleviate human suffering. Unselfish by nature, in love with humanity, he gave his work and sympathy freely and whole-heartedly to the aid of his fellow man. He lived a full life and died in service. We commend his life as an example to members of his profession, and deplore his loss to his co-workers and to the community.

Resolved Further, That these resolutions be spread on the minutes of this society; a copy be furnished to the Medical Society of Virginia, and that a copy be furnished to his widow.

R. T. McNair,
M. H. Tredway,
G. M. Naff,
Committee.

Dr. Edward Alexander Hatton,

For a number of years a practicing physician of Portsmouth, Va., and medical inspector of schools in that city, died April 3, after an illness of several weeks. He suffered a stroke of paralysis recently and had been unable to resume work since. Dr. Hatton was born in Portsmouth in 1869, and graduated in medicine from Columbia University, New York City, in 1891. He became a member of the Medical Society of Virginia in 1900 and was identified with several local medical organizations. Dr. Hatton had practiced in Portsmouth since 1892 and, just before his illness, retired from active practice that he might accept the position as medical inspector of schools of Portsmouth on a full-time basis. He was rejected for service in the World War on account of his health, but served as chairman of the medical examining board which passed on drafted men in Portsmouth. His wife and a son survive him.

Dr. John Peebles Proctor.

Friends of Dr. Proctor in this section will regret to learn of his untimely death on April 13, as the result of an automobile accident while hurrying to an emergency operation. Dr. Proctor was a native of this state, having been born at Drakes Branch, Va., about forty-eight years ago. He graduated from the University College of Medicine, Richmond, in 1903, after which he served as an interne at St. Luke's Hospital, this city. He joined the Medical Society of Virginia in 1903 and had retained his membership in our State Society, even though he had been living and practicing in Athens, Ga., for about twenty years. Dr. Proctor was one of the owners of St. Mary's Hospital, at Athens, Ga., and was considered one of the prominent surgeons of that state. He is survived by his wife, who was Miss Hileman, a graduate nurse of St. Luke's Hospital, Richmond, and three small children.

Dr. Edward Bancroft,

Formerly of Southwest Virginia, died in the Chesapeake and Ohio Railway Hospital, Huntington, W. Va., April 9, death being due to pneumonia. He was 37 years of age and graduated from the University College of Medicine, Dichmond, in 1912, after which he served as internship at Sheltering Arms Hospital, this city. He was at one time a member of the Medical Society of Virginia. He moved to Huntington from Roanoke, Va., and was shortly thereafter made one of the resident physicians at the C. & O. Hospital at that place.

Dr. Peter Arthur Haley,

Of Charleston, W. Va., died of pneumonia, on February 28. He was born in Louisa County, Virginia, 48 years ago, and had graduated in medicine from the University College of Medicine, Richmond, in 1899. He was a prominent eye, ear, nose and throat specialist of Charleston. His wife and two sons survive him.

Dr. James J. Phillips,

A well know pediatrician of Raleigh, N. C., died suddenly, at his home in that city, April 2, death being due to angina pectoris. He graduated from the College of Physicians and Surgeons, New York, in the early nineties and, after practicing in New York for about ten years, located in Tarboro, N. C. He had lived in Raleigh only a few years.

A Strong 6½% Security in Washington, D. C.

Invest Now In First Mortgage Bonds Secured by the Newest and Largest Office Building in the Nation's Capital

THE Investment Building is a striking example of the strong security with which The F. H. Smith Company safeguards investors. It is the newest and largest office building in Washington—one of the most valuable and imposing structures in the business and financial district of the Nation's Capital.

Tax Free Features
State and Federal tax free features bring the gross yield on Investment Building First Mortgage Bonds to 7.13%.

In addition to the ample security of the property itself, the First Mortgage Bonds on the Investment Building comply in every detail with the rigid safeguards which have made possible our record of **no loss to any investor in 51 years.** These safeguards are summarized in our pamphlet describing the Investment Building issue, and are described in detail in our new booklet, "Half a Century of Investment Safety in the Nation's Capital."

You may buy First Mortgage Bonds secured by the Investment building in any amount, in denominations of $100, $500, $1,000 and $5,000.

Invest Monthly Savings In This Strong 6½% Security

Our investment savings plan offers you the opportunity to invest your savings of $10, $20, $50 or more a month in the Investment Building issue and to receive the liberal interest return of 6½% on every partial payment.

Full details of this plan are given in our booklet, "How to Build an Independent Income."

MAIL THIS COUPON TODAY

The F. H. Smith Company, Washington, D. C.
Without obligation on my part, please send me the free investment literature which I have checked [√] below:

[ ] INVESTMENT BUILDING PAMPHLET.
[ ] HOW TO BUILD AN INDEPENDENT INCOME.
[ ] HALF A CENTURY OF INVESTMENT SAFETY IN THE NATION'S CAPITAL.

"47 S"

Name .....

Address .....

The F. H. SMITH CO.
Founded 1873
SMITH BUILDING, WASHINGTON, D. C.

A NEW SPRING "DUNLAP"

Starts the season off right.

¶Here in all the new blocks and shades including the Derby—$7.

Hanan Shoes

O. N. Berry Co.
ESTABLISHED 1879
RICHMOND, VA.

Main at Eleventh

VIRGINIA TRUST COMPANY
RICHMOND, VA.
THE SAFE EXECUTOR

Capital $1,000,000 Surplus Earned $1,000,000

ESTABLISHED 1892

To act as Executor, Guardian and Trustee
$25,000,000
of investments held in Trust

Confidential Interviews Invited.

Say, Doctor---

you can talk to us entirely confidentially about your affairs. Come by and let us answer your questions and advise you about your will.

This bank has friends all over Virginia, many of whom have already seen us about their wills.

Write or phone for a special engagement with Mr. G. Jeter Jones, Vice-President.

MERCHANTS NATIONAL BANK
11th & Main Streets. Richmond, Va.

"Safest For Trusts"

Virginia Medical Monthly

OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

Fifty-fifth Annual Meeting, Staunton, October 14-17, 1924.

Vol. 51, No. 3.
WHOLE No. 864.

RICHMOND, VA., JUNE, 1924

$2.00 A YEAR
20 CENTS A COPY

CONTENTS.

ORIGINAL COMMUNICATIONS:
Physiology and Pathology of the Pancreas. K. D. Graves, M. D., Roanoke, Virginia ... 133
The Symptoms and Diagnosis of Diabetes Mellitus. F. H. Smith M. D., F. A. C. P., Abingdon, Va. ... 134
The Medical Treatment of Diabetes Mellitus. J. G. Davis, Jr., M. D., Christiansburg, Va. ... 139
Surgical Treatment of Diabetes. Hugh H. Trout, M. D., Roanoke, Va. ... 142
The Treatment for Resistant Congenital Club-Foot. Paul C. Colonna, M. D., New York, N. Y. ... 144
Tendon Ganglia with Report of an Unusual Case. E. L. Kendig, M. D., Victoria, Va. ... 146
How Can This Woman Best be Delivered? C. J. Andrews, M. D., F. A. C. S., Norfolk, Virginia ... 148
Some Considerations of Chronic Constipation. J. E. Marable, M. D., Newport News, Virginia ... 151
Argyria With Report of Two Cases Due to Argyrol. T. Dewey Davis, M. D., Richmond, Va. ... 154
Conquering Diphtheria. Roger H. DuBose, M. D., Roanoke, Virginia ... 155
Subacute Bronchitis. Paul Davis, M. D., Roanoke, Va. 157
Tuberculosis of the Skin. James K. Gray, M. D., Marion, Va. ... 159
Pneumonia: Its Treatment. J. A. Noblin, M. D., East Radford, Va. ... 161
Hyperemesis Gravidarum. George A. Wright, M. D., Abingdon, Va. ... 161
Diabetic Coma, Report of an Interesting Case. J. J. Giesen, M. D., Radford, Va. ... 164
The Significance of Infection. D. L. Harrell, M. D., Suffolk, Va. ... 166
A Case of Pneumothorax Occurring in Bronchial Asthma. Hunter H. McGuire, M. D., Richmond, Va. ... 167
Psychotherapy. Grace Bryan Rollins, A. B., Richmond, Va. ... 170
CORRESPONDENCE ... 176
MISCELLANEOUS:
The Staunton Meeting of the Medical Society of Virginia. Charles Minor Blackford, M. D., Staunton, Va. 177
PROCEEDINGS OF SOCIETIES ... 178
ANALYSES, SELECTIONS, ETC. ... 179
THE TRUTH ABOUT MEDICINE ... 180
BOOK ANNOUNCEMENTS ... 182
EDITORIAL ... 183
What About the Mentally Crippled? ... 184
NEWS NOTES ... 186
OBITUARY ... 195

INDEX OF ADVERTISERS—Advertising Page 5.
(For Society Announcements, see page 34).

Summer Colds

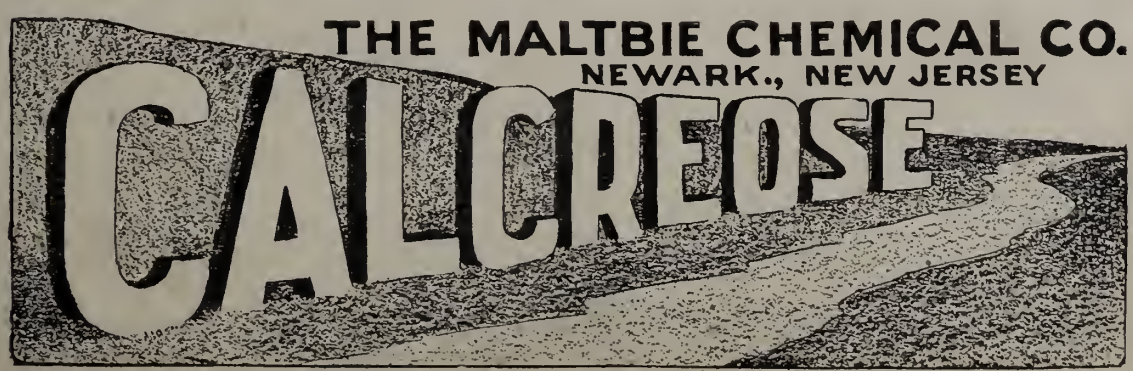
This is the time for summer colds to develop. Everyone knows how resistant they are to treatment and that disastrous complications may arise. TRY CALCREOSE

CALCREOSE (Calcium creosotate) is a mixture containing in loose chemical combination approximately equal weights of creosote and lime. It has the pharmacologic activity of creosote as used in the adjuvant treatment of tuberculosis, but differs from creosote in that it apparently does not have any untoward effect on the stomach.

POWDER — TABLETS — SOLUTION

SAMPLES of TABLETS on REQUEST

THE MALTBIE CHEMICAL CO.
NEWARK., NEW JERSEY



MEAD'S

LIVE FOOD

for Babies

There is none so good

First thought

BREAST MILK

Second thought

FRESH COW'S MILK

Water

and

MEAD'S DEXTRI-MALTOSE

For your Convenience

Pamphlet on Breast Milk

MEAD'S INFANT DIET MATERIALS

Pamphlet on Dextri-Maltose

THE MEAD JOHNSON POLICY

Mead's Infant Diet Materials are advertised only to physicians. No feeding directions accompany trade packages. Information in regard to feeding is supplied to the mother by written instructions from her doctor, who changes the feedings from time to time to meet the nutritional requirements of the growing infant. Literature furnished only to physicians.

Mead Johnson & Company, Evansville, Indiana.

Virginia Medical Monthly

Official Organ of the Medical Society of Virginia

Vol. 51. No. 3.
WHOLE No. 864

RICHMOND, VA., JUNE, 1924

20 CENTS A COPY
$2.00 A YEAR

Original Communications

PHYSIOLOGY AND PATHOLOGY OF THE PANCREAS.*

By K. D. GRAVES, M. D., Roanoke, Virginia.

The pancreas is a solid glandular organ, about 6 inches in length, and about 1½ inches in diameter, situated transversely across the posterior wall of the abdomen, at the back of the left epigastric and hypochondriac regions. It is subdivided into acini or lobules, each of which drains into a minute canal, which in turn empties into a large central canal, the duct of Wirsung, which discharges its contents into the duodenum. The secretion thus formed, called the pancreatic juice, contains trypsin, steapsin and various other enzymes, concerned in the digestion of fats and proteins.

Another entirely different pancreatic secretion is formed by small clumps of small, pale staining cells, called, from their insular isolation, the islands of Langerhans. These little collections of cells, distributed apparently haphazard through the pancreas, although somewhat more abundant in the distal portion of the organ, have, as their function the formation of an internal secretion used to stimulate the assimilation of carbohydrate by the tissues. Thus the pancreas is probably the most important of the glandular organs, if a comparison may be made as to the relative importance of various organs essential to animal existence —in that it furnishes secretions necessary for the digestion and assimilation of fats, carbohydrates and proteins.

It is upon the secretion of these islands of Langerhans that the attention of the world is focused today; students of pathology have for many years suspected the existence of this material; but it remained for Banting and Best and their colleagues to isolate it and present it to the medical profession. Even as far back as 1889, Mering and Minkowski showed that extirpation of the entire pancreas led to a series of symptoms typical of diabetes mellitus.

*Read as part of symposium on Diabetes, at the meeting of the Southwestern Virginia Medical Society in Radford, March 20-21, 1924.

Opie in 1890, and later Schaefer and Ssobolew called attention to the islands of Langerhans in connection with diabetes, and maintained that the active portion of the pancreas in preventing diabetes was to be found in them. Probably one of the closest approaches to a great discovery was made by MacCallum in 1909, and Kirkebride in 1912, when they performed a most interesting experiment, which was as follows: Half of the pancreas of a living animal was ligated, and the animal survived; a year later the animal showed the transformation of the ligated portion into a thin transparent film in the mesentery; extirpation of the normal half of the pancreas was followed by a transient glycosuria, from which the animal survived and recovered; but after the extirpation of the thin film which represented the other half of the pancreas, the animal developed severe diabetes; and this film contained many islands of Langerhans. It seems such a pity that these two men should have come so near a wonderful discovery, which in cold retrospect seems almost inevitable, and even then should have missed it. Had they been able to make an extract of this portion, from which all the pancreatic juice-secreting elements had been destroyed, and tried this out on pancreatectomized animals, diabetes would have been under control ten years sooner than it was.

Much work has been done to determine the exact action of this secretion, or insulin, as it is called, on the animal. In the test tube, this does not lower the percentage of sugar in the blood; although blood sugar is lowered when the material is injected subcutaneously or intravenously. The present consensus of opinion is that it either acts on the tissues, to enable them to absorb and utilize carbohydrate, or that it has some action on the carbohydrate itself, making it more readily assimilable.

Surprisingly few cases of diabetes have been found which show gross changes in the pancreas; but, as has been mentioned by many authors, the majority of cases show microscopic changes of one sort or another, in the number of the islands or their general appear-

ance. Authorities differ as to the characteristic changes which may be accepted as pathognomonic of diabetes; Weichselbaum lays stress on the qualitative characteristics, Weiberg on the quantitative; Allen considers fibrosis and chronic pancreatitis as evidence of functional impairment; while Cecil takes the middle ground and simply reports pathological changes of one sort or another in 87 per cent of his cases. Even this most broad terminology leaves 13 per cent of his cases in which he could find no pathological conditions of the pancreas, yet the patients had clinical diabetes mellitus. It would therefore appear that in the light of our present knowledge at least a good many cases of diabetes are caused by functional rather than organic impairment. We all know that certain states of mind can affect the secretion of gastric juice, for instance; that food passing through the pylorus of the stomach can cause the delivery of bile into the intestine; and that headache can be caused by eye strain as well as by an organic brain condition such as a brain tumor; following this line of reasoning to its logical—or illogical—conclusion, it would, therefore, seem to be within the realm of possibility that the internal secretions and hormones of the body may be so inter-correlated as to affect one another, causing either an increase or deficiency according to the biochemical condition existing. It seems to me that this may explain to a certain extent some of the cases we see now and then, which when we first see them have severe diabetes, still after a comparatively short course in dieting and the use of insulin have their insular function restored, and appear to handle food almost normally. It appears in these cases that by artificially supplying insulin the islands of Langerhans are put at rest, and later are able to take up their work again with renewed energy and function up to par again, just as by splinting a broken bone we may often get healing of the fracture and normal use of the limb again.

In conclusion, may I say that, although our knowledge of the physiology and pathology of the pancreas, especially in so far as it relates to diabetes, has just passed out of the experimental into the practical stage, still a tremendous stride has been made; and the next generation will see still further advancement, probably not so much in a study of the pathological changes as in correlating metabolic and physiological studies in a practical application on the diabetic patient; and that these studies will probably relate, not so much to the microscopical changes in the islands, as to the extent to which these islands deliver the goods; by their fruit ye shall know them.

Lewis-Gale Hospital.

THE SYMPTOMS AND DIAGNOSIS OF DIABETES MELLITUS.*

By F. H. SMITH, M. D., F. A. C. P., Abingdon, Va.

The main symptoms of diabetes have been recognized since the first century of our present era. Aretaeus, about 150 A. D., first coined the term diabetes, meaning a siphon. The first bit of research work done upon diabetes should properly be credited to certain Hindoos of India. In the Ayur Veda of Susruta, written in the sixth century, diabetic urine was said to taste sweet. In spite of this priority, the credit for this ingenious test is generally ascribed to Thomas Willis, who wrote as late as 1674. This author must have been a very positive fellow in his day, as shown by this quotation:

"But as to what several Authors say, that the Drink is little or nothing changed, there is no truth in their suggestion; Because in all People (that I ever happened to know, and I believe it to be so in all) their Urin was very different not only from the Drink that they took in, but also from any other humors that are usually generated in our Bodies, being exceedingly sweet, as if there had been Sugar and Honey in it."

Johann Peter Frank, in 1794, distinguished the two forms of diabetes, calling the one Diabetes Mellitus, or verus; the other Diabetes Insipidus, or spurious.

It is a far cry from those days to this. Much of interest can be gleaned from the history. But three items stand out boldly from all the others as stepping stones in our knowledge of the disease. In 1889 von Mering and Minkowski proved diabetes mellitus to be pancreatic in origin. In 1890, Opie narrowed the essential pathology down to that part of the pancreas known as the islets of Langerhans. In 1922, Banting and Best isolated the substance now called insulin, or iletin, from the islets of Langerhans, and established it as a true internal secretion of that part of the pancreas.

Today, we can define diabetes mellitus as, essentially, a condition of hypoinsulinism. It is to this hypoinsulinism that is attributed the excess of glucose in the blood and its con-

*Read as part of symposium on Diabetes, at the meeting of the Southwestern Virginia Medical Society in Radford, March 20-21, 1924.

stant appearance in the urine, so long as the patient remains on a normal diet. Already there is speculation as to the probability of an antithetic condition which can properly be called hyperinsulinism. By analogy, we should expect symptoms such as follow an overdose of insulin.

I suppose there are no exact figures of the prevalence of diabetes. It has been estimated that there are one million cases in the United States: i. e., one in every 110 individuals. At the same rate, there would be 20,900 diabetics among the 2,300,000 Virginians! As statistics go, the disease is on the increase in the registration area of this country, at least during the decade 1910-1920. The Maryland mortality rate per 100,000, for instance, was 12.6 for 1910, 17.0 for 1920. Now, with the renewed interest and increased hopefulness in management, I venture the prediction that the incidence will still further increase as doctors all over the land replenish their supplies of Fehling's solution and spirit lamps!

As yet, however, I have the impression that if this estimate of the prevalence of diabetes be correct, this section of Virginia is a distinct exception to the average. In order to check this impression as nearly as I can, I have asked information of our Bureau of Vital Statistics. Though I asked for figures bearing upon the disease incidence, Dr. W. A. Plecker gives me these figures:

THE DEATH RATE PER 100,000 POPULATION FROM DIABETES IN

	VA.	N. C.	N. Y.
1913	7.5		19.2
1914	8.2		21.4
1915	9.6		24.5
1916	9.0	6.6	22.5
1917	8.68	7.48	24.24
1918	8.54	7.15	22.437
1919	8.4	6.2	21.2
1920	9.3	7.7	23.3

I suppose there are no figures representing the number of living diabetics in the State. Dr. Plecker remarks, however, that it is an interesting feature that the Southern States stand very much lower than the Northern States; the two extremes being Massachusetts, with a rate of 32.5 per 100,000 population for 1920, and South Carolina with a rate of 3.6 for the same year: Massachusetts being nearly ten times greater. He says he is unable to explain this wide variation.

At least, diabetes is not one of the commoner diseases seeking relief of a general hospital. Compared with peptic ulcer, for instance, I find in our records ulcer three times as frequent as diabetes; thyrotoxicosis in its various degrees about three times as common; chronic nephritis nearly six times, and pulmonary tuberculosis of some degree of activity nearly nine times as often. Of course, it might be contended that diabetes is a disease subjected to strict laboratory control, whereas the diagnosis of the other diseases named is not necessarily confined by such strict checks. But I feel sure that we are not prejudiced in clinical judgment in favor of these several diseases as against diabetes to the extent indicated by these relative figures.

In the same series we find two instances of diabetes insipidus, and one case of renal diabetes so-called, which latter diagnosis turned out later, as usual, to be an error.

The symptoms of diabetes mellitus are interesting as we try to trace them back to their origin. Tormenting thirst is apt to be the first noticeable symptom. Coincident with it is a disturbing frequency of urination and volume of urine. The patient comments upon the fact that, in spite of voracious appetite, he is constantly losing weight until his clothes threaten to drop off of him. Weakness of body and lassitude of mind grow apace. But any or all of these symptoms may be missing in the individual case, and glycosuria be discovered at life insurance examination or upon routine urinalysis. It is not known how long glycosuria can exist without symptoms. Certainly, it is often the case that some complication, such as recurrent boils, gangrene of a terminal part, or an obstinate eczema, leads to examination and recognition of the underlying condition.

There are some symptoms not so commonly connected in the mind with diabetes. For instance, two of our cases complained of dizziness as the main, almost the only, symptom. Itching, especially of the vulva, may be a valuable clue. So, indigestion, rheumatic pains or cramping in the limbs, pains anywhere, and loss of sexual power from time to time led the patient to examination with detection of diabetes.

Saturation of the blood with sugar, polyuria and the loss of the caloric value of sugar account for most of the symptoms. Hyperglycemia causes thirst, thirst leads to increased intake of water, the increase of osmotic pressure leads to polyuria, and to desiccation of tissues, the dry skin and the dry mouth. The

loss of sugar through the urine robs the tissues of considerable food value. Hence, emaciation and weakness ensue. A vicious circle is set up. Itching, in turn, is attributed to the irritation of the sugar passing through the skin or over it, and itching causes scratching and invites infection.

The urine of the typical diabetic is light in color, increased in amount, above 1.030 in specific gravity, and shows the reaction for glucose with any of the well known reagents. But any one or more of these characteristics may be wanting, and yet the patient be diabetic. In our series, 26 per cent had a urinary output of less than 1,500 c.c.; 22 per cent specific gravity of less than 1.030; and 6 per cent showed no sugar in the urine at one or more examinations.

Hyperglycemia and glycosuria, then, are the explanation of diabetic symptoms. The one seems to cause the other. It is interesting, therefore, to discuss the occasions when glycosuria is reported, though the patient denies diabetic symptoms.

Were it not for the fact that instances continue to arise, it would not seem necessary to mention the possibility of contamination of the specimen by a copper-reducing substance in the container in which the specimen is brought to the laboratory. One of the other sugars, such as levulose and galactose, may be confused with glucose. An atypical reduction may be produced by substances other than sugar in the urine, or by the elimination of one of the copper-reducing drugs. Finally, confusion may arise through poor reagents. The thought of these possibilities suggests their own solution.

Sometimes the fault is with the patient or the clinician. Not infrequently another condition is so prominent in the patient's mind that he overlooks diabetic symptoms. Such an instance is illustrated in the case of a boy, whose mother brought him to the physician because of a deformity of his elbow joint occurring some time before, without known injury. The routine history was absolutely silent for any suggestion of diabetes; and yet the laboratory reported the urinary specific gravity 1.041; 24-hour output 1425 c.c.; glycosuria 9.0 per cent; total loss of sugar 128.25 gm.; and blood sugar 0.36 per cent. When the mother was again questioned, she stated that she had noticed an abnormal appetite, thirst and output of urine for about three weeks; but the boy had not lost weight, at least only two pounds; and she thought nothing of these symptoms. It was the elbow she was worried about!

More interesting and more complex is the condition known as alimentary glycosuria. This is, as you know, a condition brought about by overloading what is thought to be a normal carbohydrate metabolism by over-ingestion of sugar. In such circumstance the glycosuria should promptly disappear and not recur, unless the individual indulges in another sugar spree. At best, cases of this type of glycosuria should be regarded with a high degree of reservation. The chances are that such an individual has an impaired carbohydrate metabolism, that he is a potential diabetic.

Still more interesting, because rarer, is the possibility of so-called renal diabetes. This is the condition where (1) there is a fairly level output of sugar, very little changed by varying the intake of carbohydrate; and yet (2) the blood sugar is always well within the normal limits. There are none of the clinical manifestations of true diabetes; the condition remains stationary indefinitely; the patient suffers no harm from the constant low-grade glycosuria. At least, renal "diabetes" is a misnomer; renal "glycosuria" is a better term. Even so, all such diagnoses have proved to be erroneous with time and further observation, in my own experience.

Glycosuria appears, too, in disturbance of the other endocrine glands. According to the theory of von Noorden, I believe, the suprarenal glands promote the mobilization of the sugar from its storehouse in the liver. The pancreas tends to lock the glycogen within the hepatic warehouse. The thyroid, in turn, antagonizes the internal secretion of the pancreas. Upon such a conception it is easy to understand that hyperthyroidism may lead to hypoinsulinism and glycosuria; while stimulation of the chromaffin system may temporarily increase the mobilization of the glycogen stored in the liver. Witness the administration of adrenalin in the hypoglycemia produced by insulin. It is probable that the glycosuria of brain puncture, and that following certain surgical operations, etc., is brought about through sympathetic stimulation of the chromaffin system, which in turn augments mobilization of the liver's supply of

glycogen. Possibly such hormonic disturbance may ultimately lead to true diabetes. I doubt, however, the propriety of regarding all such glycosurias diabetes, at least when frank diabetic symptoms are lacking.

Sometimes, on the other hand, we meet with a more or less complete chain of symptoms and signs of diabetes when the laboratory reports are negative in one or more essential findings.

Again, it is necessary to recall some of the possibilities of error. It is easy on careless examination to miss a trace of glycosuria because, its presence being not suspected, the reaction is not followed through.

The diabetic may have been so well coached in the relation between his diet and the appearance of sugar in the urine that he may, maliciously or unintentionally, mislead by refraining from sugar-producing food. Joslin says that by abstinence beforehand the diabetic patient might eat one meal containing approximately 100 to 150 gm. of carbohydrate, and 25 gm. each of proteins and fats without the appearance of glycosuria. If, however, the patient's urine is sugar-free when collected within two hours of eating two such meals consecutively, he is a safe risk for life insurance.

This, undoubtedly, is the simplest test for uncovering a latent diabetic, but Joslin himself admits that some mild cases will be overlooked when the functional tests end here. The fact is the occasional case requires resort to blood chemistry for detection.

The normal blood sugar content is variously stated as lying between the figures 0.06 or 0.08 per cent as the low point, and 0.10 and 0.12 per cent as the high point. While sugar has been found in the urine with the blood sugar as low as 0.07 per cent and has failed to appear in the urine when its concentration in the blood was 0.50 per cent (Joslin), the normal threshold above which glycosuria usually appears is somewhere around the figure of 0.17 per cent. In other words, the normal kidney is impermeable to sugar in concentration of less than 0.17 per cent.

Some puzzling problems in diagnosis are presented in connection with the blood sugar. Cases occur in which glycosuria has been found in small traces by one or more physicians. Upon examination diabetic symptoms may be denied *in toto*, the urine may be entirely negative for sugar, and the blood sugar may be well within the normal limits. We may be tempted to dismiss the patient with the opinion that there is no disease; or at most he suffers from alimentary glycosuria, or, possibly, renal glycosuria. But not all can be dealt with out of hand in such fashion. A young man of 17, for instance, reported that sugar had been found in his urine at intervals for ten months. He denied all symptoms except the loss of five pounds in weight. The specific gravity of the urine was 1.028; sugar was present in his urine to the extent of 0.59 per cent; and yet his blood sugar stood at 0.088 per cent. I shall revert to this case in a moment.

In far more cases we are puzzled by the fact that there is a constant hyperglycemia, possibly as high as 0.20 per cent, and yet no glycosuria appears.

In such cases as that of the boy with glycosuria and normal glycemia, a test referred to as the sugar tolerance test has been proposed as of value in diagnosis. This test is based upon the fact that the ingestion of sugar will result in a distinct increase of glycemia in all individuals, whether diabetic or not; but the glycemic curve will vary widely in the two cases.

If the normal individual takes one hundred grams of glucose on a fasting stomach, the glycemia rises to its highest point which is nearly always under 0.15 per cent, usually within thirty minutes. It falls to its fasting level or below within two hours after ingesting the glucose. At the height of the blood sugar curve, a trace of sugar may appear in the urine. In the absolute normal, there should be no glycosuria.

If, on the other hand, the diabetic individual takes one hundred grams of glucose, the curve representing the blood sugar level is very much higher, and the reaction is very much prolonged, so that the return to the fasting level may not occur even four hours after the ingestion of glucose.

We regard the boy of 17 who showed constant glycosuria as a case of mild, though true diabetes because his blood sugar curve began at 0.088 per cent on a fasting stomach, and even three hours after taking sugar it stood at 0.1117 per cent; and, furthermore, because after only four days of moderate reduction of his carbohydrate intake, the glycosuria had entirely disappeared.

I am not persuaded, however, that it is safe

to rely entirely upon a moderate degree of hyperglycemia, or upon the so-called diabetic response to the sugar tolerance test in making an absolute diagnosis of diabetes mellitus. Both the hyperglycemia and the delayed fall after ingestion of sugar doubtless depend upon the same mechanism, a disturbance of the utilization of carbohydrates. However, overactivity of the thyroid, disturbance of the pituitary body, and especially in our experience chronic nephritis, by raising the renal threshold, may be responsible for a confusing sugar curve, as well as suggestive clinical symptoms. Great caution must be exercised in reaching a final conclusion upon this basis alone.

A consideration of the symptoms and diagnosis of diabetes would be very incomplete without reference to the complicating factors which may be as important as the disease itself. These complicating factors may be unconnected with the diabetes except as they exist in the same subject: or they may be directly consequent upon the diabetic process.

Certainly, diabetes does not render the individual immune to any other disease. In spite of authoritative opinion to the contrary, it seems probable that the depraved health and nutrition of the diabetic should predispose him to disease. Yet, after studying our own series, I doubt whether I could show that any intercurrent disease is more common in the diabetic than in the non-diabetic. Gall-bladder disease, appendicitis, pulmonary tuberculosis, oral sepsis, chronic tonsillitis and chronic nephritis are, for instance, among the most frequent findings in the general run of hospital patients. Therefore, it is not surprising that these conditions occur frequently as concurrent factors in diabetes.

An exception might be taken to cholecystitis. There is abundant reason to believe that there is an etiologic relation between the two, though through just what mechanism they are related is not entirely clear. It seems more rational to connect them up through the same causative factor than to believe that the cholecystitis is responsible for the diabetes. When it is recalled how much of the pancreas can be actually destroyed without interference with carbohydrate metabolism, it is unlikely that the pancreatitis so frequently accompanying cholecystitis is the sole factor. This common causative factor of the two may be, for instance, the factor producing the obesity, or, possibly, some focal infection.

I am equally certain that there is a distinct relation between obesity and diabetes. Diabetes seems to be the penalty exacted for putting on of fat about middle life. Yet it is surprising to note how many fat people show no glycosuria and no hyperglycemia, nor any other evidence of an actual or potential diabetes.

Joslin tersely says that diabetics seldom die of the disease *per se*, but of complications which are universally recognized as largely preventable: coma, gangrene, infections. Uncomplicated diabetes should end in death from inanition, tissue starvation. Few patients literally starve to death, but, in my opinion, more of our patients than we realized were done harm during the era so recently past when, in order to keep them sugar-free, we had nearly to starve them.

By infections we mean not only local, or surgical, infections, but also the general infectious diseases. A known diabetic under good care will have been warned of the danger of injuring himself in any way, and of the care of injuries, boils, corns, etc. He will be told to avoid contagious diseases. But the greater danger is that neither the injured one nor his attendant may have recognized the diabetes until infection or gangrene has developed. The danger is, of course, grave, but not within the scope of this paper to treat.

Coma is another matter. Its causes and the chemistry of the acidosis preceding it have been covered by others. Suffice it now to say that true diabetic coma is the end-result of acidosis. Acidosis, however, is not synonymous with the excretion of acetone bodies in the urine. The harm comes from the retention of these acid bodies, the exhaustion of the alkali reserve their neutralization imposes, and the effect that this exhaustion has upon the body fluids and tissues. This cannot be measured in terms of the acetone bodies that appear in the urine. It is true that acidosis rarely develops without acetonuria. It is also true that the interval between the first appearance of acetonuria and fatal coma may be less than a week. It is equally true that all of these bodies may be excreted through the urine for months and years without either subjective or objective symptoms of acidosis.

The test for the acetone bodies is, nevertheless, important, because their presence sug-

gests possible exhaustion of the body's alkali reserve. If the reaction of the urine be neutral or alkaline, it may be assumed that there is still abundant alkali to neutralize the acid.

More significant of the exhaustion of the alkali reserve is the presence of increased ammonia in the urine. Normally, about 0.5 gm. of ammonia is excreted in 24 hours, or about 5 per cent of the total nitrogen excretion. Because the acid bodies combine with ammonia, an increased excretion of the combined ammonia furnishes an index of the quantity of acid substances. It may be broadly assumed that no danger from acidosis exists when the ammonia remains below 2 gm. in 24 hours, or when its excretion is 20 per cent or less of the total nitrogen.

These several laboratory procedures measure the degree of acidosis. But the most direct index of the danger acidosis is imposing upon the vital activities of the organism is through the determination of the carbon dioxide tension in the blood. The carbon dioxide tension of the alveolar air is the same thing and is easier of determination. Van Slyke's method for the one, and Haldane's or Fridericia's method for the other, are complicated processes beyond most of us, who are not laboratory workers. The apparatus and the technic of Marriott are simple and, if the patient is still rational and co-operative, accurate enough. The details of the test I shall omit. The normal carbon dioxide tension of the alveolar air is 40 to 45 mm. of mercury. Tensions of 40 to 30 indicate mild acidosis; and 20 and below indicate impending coma.

The symptoms of acidosis are few, but they are characteristic and cannot be safely ignored. They demand immediate relief, as coma is in the offing. Fatigue, lassitude and irritability are usually first complained of. These complaints in the diabetic should call for immediate investigation of the possibility of acidosis. Nausea, vomiting and unexplained diarrhea are usually next to develop. Then, as the carbon dioxide tension further falls, a peculiar form of breathing sets in. This is not dyspnea, though on first sight it suggests that term. Breathing, however, is not hurried, is not difficult nor painful; but it is much deeper than normal. This is hyperpnea. It is always a danger signal, but unfortunately it is frequently overlooked or its significance is not realized. Then drowsiness sets in, becomes more marked as hours pass, until finally unconsciousness supervenes. Death almost invariably follows within 48 hours unless the condition is promptly recognized and boldly treated.

Of course, not all coma in diabetics is diabetic coma. But if in emergency there be glycosuria and ketonuria, this fanning, bellows-like breathing, the patient exhibit any degree of lethargy, and a rapid examination and survey of the patient furnishes no other rational explanation of the situation: then, in the interest of the patient's life itself, treatment with insulin should be begun. Promptness in beginning treatment is urgent for, after a certain degree of "cell shock" from acid intoxication has occurred, neither insulin nor anything else will save the patient.

George Ben Johnston Memorial Hospital.

THE MEDICAL TREATMENT OF DIABETES MELLITUS.*

By J. G. DAVIS, Jr., M. D., Christiansburg, Va.

Recent studies, instead of rendering the management of diabetic cases simpler, have gradually added new phases which are tending strongly to take them from the hands of the busy general practitioner who, by the way must treat about 90 per cent of the cases, and place them in the hands of internists in the larger hospitals. If such is the case, what hope can we give the 90 per cent who for various reasons, financial and otherwise, can never afford the expense of such treatment? It is to this latter phase that I shall attempt to devote most of this brief discussion.

In view of the etiology, diagnosis, etc., which has previously been discussed, the medical treatment of the ordinary case without coma or other severe symptoms is obviously divided into two large classes: dietetic and medicinal.

The Dietetic Treatment

The diagnosis of the disease being definitely determined, the patient, after presentation of himself for treatment, is placed upon a basal maintenance diet which includes the necessary 1 gm. x Kg. of body weight of proteins to take care of the destroyed tissue (for a child this of course should be much higher), and fats and carbohydrates in about their 3-1 ratio. The patient is kept on this diet for about one week, during which time a careful watch is kept on the blood and urine for the per-

*Read as part of symposium on Diabetes, at the meeting of the Southwestern Virginia Medical Society in Radford, March 20-21, 1924.

centage of sugar, acetone bodies, etc. If at the end of this period the patient is symptomless, the urine sugar free, and the blood sugar close to normal, we believe that dietary treatment is all that is necessary, except in a few cases which I shall mention later.

The patient is now taught as far as practical to handle his own case. The various food values and a method for determining their caloric value is explained as well as possible. A small balance, alcohol lamp, test tubes and a few ounces of Haynes' or Fehling's solution is all the equipment it is necessary for him to buy. A very useful book that serves as an excellent guide has been written by Dr. E. P. Joslin, and can be purchased from Lea and Febiger, Philadelphia, for the sum of two dollars.

The patient is instructed to at first weigh all of the food he eats; later, after he has learned the approximate household equivalents, he is permitted to guess at the amounts. He is also instructed to examine qualitatively for sugar every voided specimen of urine as far as is practical, and to send a sample of the twenty-four hour specimen to the laboratory once a week at first, and later once a month.

As long as he remains symptomless and the urine sugar free, we offer no further treatment.

Joslin estimates that about 75 per cent of all diabetics can be treated successfully in this manner.

The Medicinal Treatment

Until very recently scores of drugs have been tried, recommended, and discarded; among the most used and requiring mention are opium and various alkalies. At one time opium was thought in some way to have a specific action on diabetes, but the works of Joslin, Naunyn, von Noorden, and others proved that whatever action it could have clinically was slight, and then only as a result of very heavy doses. They eliminated it from their routine treatment prior to 1921; so certainly in the light of discoveries since 1921 opium can only be condemned.

Theoretically, a diabetic patient needs alkalies; practically, however, its omission is tended with happier results than its administration. Joslin gives the following reasons for his refusal to use it in any of his cases since 1917. First, the constant use of alkalies appears to promote the constant excretion of acid bodies and often a mild acidosis of months vanishes on the omission of soda. Second, when alkalies are given, large quantities of urine must be voided to remove the salts of the acid. The quantity of liquid which must be ingested is so large as to overburden the stomach and the excretion of so much acid frequently overwhelms the kidneys and they cease to act. Third, alkalies often cause nausea and vomiting, though the instances are fewer when chalk is combined with the soda. Fourth, their administration over long periods may deplete the body salts, such as chlorides, which are distinctly useful, and furthermore set free acid bodies existing combined, quiescent and harmless in the body, and thus do harm. And lastly, thanks to Banting and Best, we have a drug which we know will do all and even more than alkalies could ever do, even theoretically.

Discovery of Insulin

In 1920, Banting conceived the idea that if an extract of the islands of Langerhans could be obtained before the digestive ferments of the acinar portion had destroyed its potency, it would be distinctly useful. His reasons for, plan of procedure and method of manufacture have for the most part just been explained by Dr. Graves. Needless to say that in a few months, with the hearty co-operation of Eli Lilly and Company, a reliable extract of these glands was prepared and can be supplied in sufficient quantities for general use. They named this extract "Insulin," after a previous suggestion of Sir E. Schaefer. The trade name of that prepared by Eli Lilly is "Iletin."

Physiological Action of Insulin

After intensive investigation, the Insulin Committee of the University of Toronto reported the following:

(1) That insulin lowers the blood sugar in normal rabbits, that characteristic symptoms supervene when a certain low level is reached, and that these symptoms are specifically counteracted by glucose.

(2) That it may prevent the hyperglycaemia due to piqure, asphyxia, epinephrin and ether.

(3) That it increases the sugar consumption by the isolated mammalian heart.

(4) That it causes glycogen to be deposited in the liver of diabetic animals fed with sugar.

(5) That it raises the respiratory quotient of diabetic animals fed with sugar.

(6) That it affects the migration of fat in diabetic animals.

(7) That it causes the acetone bodies to disappear from the urine of diabetic animals.

Dosage and Method of Administration of Insulin

At first the unit of insulin was defined as that amount which lowers the percentage of sugar in the blood of a normal 2 Kg. rabbit and starved for twenty-four hours to .045 per cent. Later it was changed to the amount necessary to lower the percentage of a 1 Kg. rabbit to the above figures under the same conditions. And in November, 1923, at which time it was put in the hands of druggists for distribution, it was increased 40 per cent in strength. It is now supplied in three strengths, U-10, U-20 and U-40. The U-10 contains 10 units x cc., and the U-20 contains 20 units x cc., U-40 contains 40 units x cc. All are supplied in 5 cc. ampules.

Numerous attempts to administer insulin by mouth, even when enteric capsules are used, have proved that it is absolutely void of any action when used in this manner. It therefore becomes necessary that every dose be given hypodermatically. This at first appears a great handicap, but when we consider its potency and the alarming symptoms of an overdose, we can readily see the harm that would surely come from careless administration, both by physician and patient, if it could be given orally.

Insulin is now given in from one to four doses per day, depending upon the severity of the case and the preference of the physician. It is best given from five to thirty minutes before meals and, if only one dose is used per day, it is best given before breakfast.

Indications for and Use of Insulin

We will again consider the diagnosis definitely established and the patient free from coma or other symptoms requiring immediate intervention. Upon presentation of himself for treatment, the same procedure as that for the mild case is followed. If, at the end of one week, during which the patient has been given a basal maintenance diet, the urine contains a definite amount of sugar and the blood sugar is still above normal, the use of insulin is begun. The diet at this stage remains unchanged. We prefer to start with three daily injections about twenty minutes before meals, the first injection being only one unit, and increased by one unit per meal until the patient is receiving five units at which time he begins receiving five units per injection and increasing three units per day, that is one unit per injection, until the urine is sugar free and the blood sugar within normal limits. The small dose is used at the beginning because of the individual peculiarities manifested by different patients, no two of which seem to require the same amount to do a like work.

It is when a patient is receiving insulin that the strictest watch must be kept on the diet, urine and blood; even a small variation in the food intake may cause a hypoglycaemia with its imminent danger. Luckily, the treatment of hypoglycaemia is simple and easy, and can usually be carried out by the patient himself. Every patient is taught the warning symptoms, which include (1) sense of impending danger, (2) sudden nervousness and hunger, (3) sweating and tremor, (4) subconsciousness. And no patient is allowed ever to be without a piece of candy, orange or some other rich form of carbohydrate, because if taken early this is all that is necessary. If by chance the patient has failed to eat any sweets and is not seen until unconsciousness has intervened, epinephrin or glucose intravenously may be given at once.

The question now arises, how long must a patient use insulin? And does it have any curative action on diabetes? The last question is answered by the physiological action of the drug: it does nothing but supply for a few hours after each injection the hormone that a diseased pancreas is failing to produce in sufficient quantities for the metabolic needs of the body. The question of whether or not the support that it lends will enable nature to rebuild worn out portions of the pancreas is as yet unsettled. Our own limited experience would tend to give hope that such is possible as all of our cases have been able to reduce their dose in a few months and several who took as high as fifteen to twenty units per day are now keeping "sugar free" with dietary measures alone.

Acidosis in Diabetes

The whole treatment of diabetes, both dietary and with insulin, is based on the prevention of acidosis. If the patient does not have any other illness and keeps his diet "balanced," and his urine sugar-free, there is very little danger

of acidosis. It is when other sickness intervenes or carelessness is practiced with the diet that the trouble comes. It is with this in view that all patients are given the following written instructions:

Whenever ill from any cause:

(1) Go to bed,

(2) Keep warm,

(3) Take a glass of hot water, tea, broth, orange juice, or oatmeal water gruel every hour,

(4) Empty the bowels with an enema,

(5) Call a physician.

By following the above rules coma can nearly always be prevented.

Treatment of Diabetic Coma

If the patient is not seen until in a comatose condition, the following procedure is carried out: (1) An initial dose of twenty units of insulin is given intravenously. This is repeated hourly whenever necessary and, if much is given, glucose is also added in the same method; (2) The patient is provided with a special nurse (if possible one trained in diabetic work); (3) He is kept warm with artificial heat: (4) The bowels are opened by one or more enemata (cathartics should be avoided, as they are apt to cause diarrhea in a diabetic); (5) Liquids are given at the rate of 1,000 cc. every six hours: (6) The patient is given 1 gm. carbohydrates per Kgm. body weight every twenty-four hours. This is usually given in the form of orange juice; (7) The circulation is sustained with digitalis and caffein; (8) No alkalies are given. If they have been given previously, they are omitted at the rate of 30 gm. per day.

SURGICAL TREATMENT OF DIABETES.*

By HUGH H. TROUT, M. D., Roanoke, Va.

When I was informed I had to present a paper on the surgical treatment of diabetes, I naturally concluded that what was really wanted of me was to comment on the surgical treatment of the complications arising during the life of a diabetic. Of course, we all realize there is no true surgical treatment of diabetes except the prophylactic treatment of conditions which might bear some relation to the causative condition, such as diseases of the biliary tract, or possibly some focal point of infection.

*Read as part of symposium on Diabetes, at the meeting of the Southwestern Virginia Medical Society in Radford, March 20-21, 1924.

Before treating any disease it is most essential a correct diagnosis be made, and, with diabetes mellitus, this is not always as easy and certain as some authors would have us believe. For example, Lichty and Woods, Pittsburgh, Pa., in the *American Journal of the Medical Sciences*, January, 1924, reported twenty-five (25) cases of glycosuria complicating biliary tract disease. The total number of cases of gall-bladder and duct disease observed during the same period was 1,474, of which 431 were verified at operation or autopsy. Out of the 25 cases of glycosuria associated with biliary tract disease, 14 were definitely diabetes mellitus according to symptoms, blood, urine tests, etc., while the remaining eleven (11) ceased to show sugar in the urine after the correction of the biliary disease. Out of the fourteen (14) definite diabetes mellitus cases, three (3) were apparently permanently completely cured by the application of corrective surgery to the gall-bladder and ducts. The remaining eleven (11) cases seemed to be more easily controlled by medical and dietetic treatment than they had been previous to their surgical experiences.

In our own personal experience we have not seen any case, which we diagnosed definitely as diabetes mellitus, cured by any operation on the biliary tract, though we have, like many other surgeons, seen sugar disappear from the urine following operations not only on the biliary tract but also on many other organs. Perhaps the most frequent mistaken diagnosis of diabetes mellitus we surgeons see is that of a patient having a large carbuncle associated with a trace of sugar in the urine and an increased amount of blood sugar. After the excision and cure of the carbuncle a large percentage of these cases show a decrease in the blood sugar and a disappearance of the sugar from the urine. Some throat men have reported similar experience following tonsillectomies.

None of these clinical observations should cause much surprise, for a very cursory review of the evolutionary steps which lead up to making the brilliant work of Banting and others possible suffices to show the relationship between the islands of Langerhans to both near and remote structures. Even back as far as 1899, Lancereaux wrote of the association between biliary and pancreatic disease, while Opie in 1901 proved both by animal experi-

mentation and clinical observation such a relationship. One can understand how easily bile can be backed up in the pancreas through the ducts of Wirsung, due to some pathological condition existing in the common duct. It is almost hard to explain why injury to the islands of Langerhans does not occur more frequently, provided this blockage takes place as often as many of us believe it does. It is possible this does not occur more frequently due to the fact that "the proportion of the isles of Langerhans to the external secreting tissues increases in a very definite ratio toward the tail of the pancreas," and, therefore, the result of the damming back, effects the head of the organ first, causing primarily the symptoms of an acute or chronic pancreatitis and only late producing the picture of diabetes mellitus. Of course, the isles of Langerhans are not supposed to have any connection with the external secretion of the gland, but it is not unreasonable to picture an inflammatory process breaking down any such barrier.

In these days when we are all ascribing first one pain and then another, as well as disease, to some focal point of infection, it would indeed be odd were we to omit the pancreas from the list, and, particularly strange at the present time, when most every issue of our medical journals contains some article on diabetes mellitus.

The three conclusions of the article by Lichty and Woods are most timely and well worth quoting:

"(1) On account of the possibility of gall-bladder and duct disease being later complicated by diabetes mellitus, and, on account of the conceded increased danger of operation after such a complication has occurred, there is an added indication for prompt surgery in all biliary tract diseases:

"(2) On account of the apparent cure of diabetes mellitus (a heretofore supposedly incurable disease) as found in our limited experiences, we believe a certain operative risk is justifiable in cases of diabetes mellitus giving reasonable evidence of gall-bladder and duct disease:

"(3) The urine and blood should receive a more careful and purposeful study in all cases of suspected gall-bladder and duct disease."

After the diagnosis has been correctly and definitely made and a surgical complication arises, the management of that patient becomes a dual responsibility between the medical man and the surgeon; provided, of course, circumstances are such that one physician is not forced to act in both capacities. This relationship of internist and surgeon is so important (and, at times, so infrequent) as to call forth an editorial on this one point only. This editorial appeared in the February issue of *Surgery, Gynecology and Obstetrics* and was written by Dr. Walter M. Boothby, of Rochester, Minn. He calls attention to the danger of the medical and surgical services being so far separated as not to have the close co-operation so essential in the proper pre- and post-operative care of the diabetic. He stresses the point there should be no interruption in the expert medical supervision. In Joslin's monograph there has been shown a steady decrease in the mortality rate following surgery in cases of diabetes and this is due largely to co-operation of the internist, with his insulin and diet, and the surgeon, with his eagerness to have the aid of the physician who has been treating the case. By such means the mortality rate has been reduced from about 30 per cent in 1918 to about 3 per cent in most clinics in 1923, while Wilder and Adams, of the Mayo Clinic, report as low as 1.2 per cent in 251 operations done on diabetic patients; 83 of these were intra-peritoneal operations with a mortality of 3.6 per cent.

Like operations on normal individuals, operations on diabetics are to be divided into two great classes, namely, those of necessity and those of election.

Operations of necessity include those complications such as diabetic gangrene, which are produced by the disease itself as well as those acute surgical emergencies such as perforation of the stomach, which are incident to the daily routine of most of our hospitals. Joslin, as well as most other authorities both medical and surgical, advocates immediate operation to meet such crises. All stress the point that delay, in hope of improving the patient's condition by the use of insulin, etc., is both dangerous and ineffectual, and especially is this true in those cases in which the complication is due to the diabetes *per se*. As an illustration, presume we were treating a case of "moist" diabetic gangrene of some extremity. It is far better to amputate immediately by the use of block anaesthesia, than it is to wait for improvement from insulin, for all during

the period of treatment the patient is absorbing toxic products from the extremity and is forced to carry this additional load while being treated for the diabetes. The "dry" gangrene does not require such emergency methods being employed.

In operations of election, where delay is not too dangerous, the reverse is true and time should be taken to bring the patient to the best possible condition. This is best accomplished by the proper diet and the use of insulin, etc., in the hands of one well versed in the employment of such agencies. One point not to be forgotten that is sometimes overlooked, unless there is the closest co-operation between the internist and the surgeon, is, due to the absence of breakfast before operation, glucose should be given by rectum in proper amount, as well as the usual dose of insulin employed, to compensate for the missed meal. This is also to be continued after the operation until the patient is on proper diet.

The diabetic patient requires large quantities of water post-operatively and, if such can not be given by mouth, it should be forced either by rectum or given subcutaneously and, even intravenously, if demanded.

It is also important before operating on a diabetic to be certain there is an ample supply of insulin on hand to meet any emergency which the internist might find from the frequent post-operative examinations of the urine and occasional test of the blood sugar.

Having reached the decision to operate, naturally the first question to arise is the choice of the anaesthetic. Of course, where one can use successfully local anaesthesia without physic shock, such should be employed, not only by means of the infiltration and "field block" methods, but also by the nerve block such as the regional anaesthesia given into the sacral hiatus and foramina. This last is particularly applicable to prostatectomies, gynecological and rectal operations.

Of the general anaesthetics, Luckhardt has shown that ethylene with oxygen is not only the safest in diabetics but this gas does not, even after prolonged anaesthesia, lead to an albuminuria or a glycosuria, which can not be said of any other general anaesthetic. In the employment of this comparatively new anaesthetic, one point must be borne in mind and that is the gas is highly explosive, and a cautery, such as is often employed in the excision of carbuncles, can not be used.

If ethylene is not obtainable, then nitrous oxide and oxygen is the next best though, for complete relaxation, the addition of a little ether is often required with this latter gas.

Chloroform should never be given to a diabetic, for it increases markedly not only the blood sugar, but also produces liver changes which are especially dangerous in this class of cases.

The chronic or inexperienced surgeon has no place in this field of surgery, but, on the other hand, due to the careful work of a modern internist, undue haste is no longer excusable in the surgery on diabetics.

Jefferson Hospital.

THE TREATMENT FOR RESISTANT CONGENITAL CLUB-FOOT.

By PAUL C. COLONNA, M. D., New York, N. Y.

The treatment for congenital equinovarus may be conservative or operative, but in the older and more resistant cases a combination of these procedures is most satisfactory. In infancy, club-feet properly treated, yield uniformly good results, but in the older patients the structures become increasingly resistant to manipulation and one is compelled to sacrifice to a varying degree, the function to the form of the foot. The tissues in untreated or improperly treated club-feet, which the orthopedic surgeon sees in older children and occasionally even in adults, have undergone very definite and marked changes—all the component parts of the foot entering into the deformity.

The earliest change and one of the most difficult to correct is that which occurs in the plantar fascia and ligaments of the foot, especially the ligaments binding the scaphoid, os calcis and internal malleolus to one another. The extrinsic musculature of the foot, most marked in the tibialis anticus, tibialis posticus, gastrocnemius and soleus muscles, show atrophy and shortening while all the intrinsic muscles show these changes in a more marked degree. The astragalus and os calcis present the greatest bony change, the former becoming thicker along the external border, somewhat wedge-shaped from without in and plantar flexed, so that a large part of its body may protrude between the malleoli. The neck of the astragalus is longer than normal, depressed and deflected inwards. The os calcis also is in an attitude of plantar flexion, the internal

tuberosity being drawn upward towards the vicinity of the internal malleolus, the anterior extremity looking downward and inward.

Fig. 1—One view before operation.

The treatment of resistant club-foot must fundamentally be an operation on the skeletal structure of the foot. For the extremely severe type, the so-called "reel foot," an astraglalectomy with backward displacement of the foot is often most satisfactory. At the Hospital for the Ruptured and Crippled, the majority of the resistant cases have been treated by tarsectomy, following somewhat the procedure practiced many years ago by English surgeons, which was slightly modified and fully described by Cook in 1916. During the four year period from 1920 to 1923 inclusive, this mode of correction was done on the Second Orthopedic Division in 22 cases of congenital equinovarus. The age at operation ranged from 3½ years of age to 27, the case here reported being the oldest in the series.

The procedure followed for a cuneiform tarsectomy is briefly as follows: The usual pre-operative preparation is done and, after the patient is under anaesthesia, a tourniquet is applied just above the knee. The plantar tissues are subcutaneously divided if they are found contracted. The foot is manually brought into as much correction as possible, after which a vertical skin incision just in front of the external malleolus is made. The peroneal tendons are usually atrophied to such an extent as to be useless and in these cases

Fig. 2—Another view before operation.

they are sectioned and no attempt made to re-unite them. With a wide blade osteotome, a large wedge with base outward, is removed, cutting *completely* across the foot. This wedge is taken from the astragalus, os calcis, cuboid and, if necessary, the scaphoid *en masse* and should be of sufficient size to correct the deformity. If the heel-cord needs lengthening, an open zig-zag tenotomy is done, which is considered preferable to the closed subcutaneous method. The foot is then placed in the corrected position of very slight calcaneo-valgus, wounds closed, cotton wadding and plaster of Paris applied from the toes to the knee, care being taken to elevate the anterior part of the outer border of the foot by a quarter turn when the plaster is applied. This quarter turn aids greatly in preventing a recurrence of the varus deformity. The patient in a few weeks is allowed to walk on the plaster and in six to eight weeks after the operation is fitted with an ordinary shoe which has had the outer border of the sole raised slightly.

Occasionally there is a knock knee deformity accompanying the club-foot condition which should be corrected and also a torsion of the shaft of the tibia which, as Geist has pointed out, should be treated by osteotomy.

Case—J. D., a man, aged 27, entered the office in May, 1923, on account of deformities of both feet. Examination was negative with the exception of the bilateral equinovarus deformity for which the patient was wearing short, double, upright supporting braces. Examination of the feet showed a severe type of equinovarus, the patient walking on the outer surfaces of the feet and the third, fourth and

fifth toes flexed and contracted. What would have been the sole of the foot was soft, bore none of the weight in walking and presented no contracture of the plantar fascia. There

Fig. 3—One view after operation.

was only slight motion in either ankle joint and apparently no activity of practical value remained in the tibialis posticus or peroneals. The patient was admitted to the Hospital for the Ruptured and Crippled.

On June 7th, under ether anaesthesia, both feet were stretched and plaster of Paris ap-

Fig. 4—Another view after operation.

plied with feet in as much correction as possible and, on June 14th, a cuneiform tarsectomy was done on the right foot and new plaster applied to the left. Following this the toes on the right foot became swollen and either on account of circulatory disturbance resulting from the tarsectomy or too tight plaster, it was necessary to amputate the fourth and fifth toes on the right. The wound healed rapidly and in the latter part of July the patient was discharged with both feet in plaster, and walking with the aid of crutches. On September 20th, he returned and cuneiform tarsectomy was done on the left foot and in October the patient was discharged from hospital wearing ordinary shoe on the right foot and light posterior plaster splint on the left. A few weeks later an ordinary shoe was fitted on the left foot and figures 3 and 4 show corrected position of feet which enabled the patient to wear an ordinary type of shoe.

Summary

1. With the untreated or poorly treated cases of congenital equinavarus, as seen in the adolescent or adult, a cuneiform tarsectomy has been the procedure of choice at the Hospital for Ruptured and Crippled.

2. Following the details outlined above, the results in these cases have been most satisfactory.

3. The technique of the operation is simple, the most important points being, first to remove a wedge of sufficient size and secondly, to elevate the outer border of the sole of the foot when applying the plaster.

42 *Park Avenue.*

References.

Cook, A. G.—Jour. Orth. Surg. Vol. XIV., p. 9, No. 1.
Geist, Emil S.—Jour. Bone & Joint Surg. Vol. VI., p. 50. No. 1.
Walsham and Hughes—Deformities of the Human Foot.
Whitman, Royal—Orthopedic Surgery. Sixth Edition.

TENDON GANGLIA WITH REPORT OF AN UNUSUAL CASE.*

By E. L. KENDIG, M. D., Victoria, Va.

Tendon ganglia are considered harmless. Consequently the subject does not occupy much space in medical or surgical literature.

I take the liberty of discussing so common and so minor an ailment at this time from the fact that, although frequent and considered more or less harmless, this condition sometimes presents a problem of diagnosis and treatment.

A ganglion may vary in size from a pea to a walnut. They have their origin from connective tissue and are usually found adherent

*Read before the Southside Virginia Medical Association at Suffolk, Virginia, March 11, 1924.

to a tendon sheath. Franz reports a case where the ganglion was found in the substance of the tendon and refers also to four other such cases found in medical literature. They have been known to occur in a muscle. Borchurat reports a case occurring in the biceps and Morestin found one located on the semitendinosus.

Tendon ganglia are most usually seen on the dorsal-carpal region, although they are often found on the dorsum of the foot and the palmar surface of the hand. Cases have been reported where they occurred on the external semilunar cartilage of the knee, the capsular ligaments of certain joints, and the hamstring muscle upon each side of the popliteal space. Hoffman tells of a case occurring on the tendon of the peroneus tertius muscle.

Tendon ganglia are cystic tumors consisting of a connective tissue capsule and containing a clear or straw-colored jelly-like material. The research work of Ledderhose, Thorn, Franz, and others showed that a tendon ganglion is the product of a connective tissue degeneration, having its origin probably in some strain or injury of the tendon. The degeneration occurs in the central part of the tumor and, as the growth enlarges, a cyst is formed. The cyst is multilocular at first, later becoming monolocular through the process of degeneration. Tendon ganglia may grow to a certain size and then remain stationary. They have been known to entirely disappear if left alone. The usual symptoms found are the presence of a tumor of variable size, sometimes pain, and occasionally a weakness of the affected tendon or muscle.

If the tumor is superficial, recognition by palpation is easy. If it occurs in the deep tissues, although this is rare, recognition by palpation is more difficult. On account of its attachment to the tendon sheath, the tumor can usually be moved laterally but not longitudinally. The pain present will depend on the location and the pressure of the tumor on the surrounding parts. The weakness of the involved muscle, when present, is due very largely to a partial or slight dysfunction.

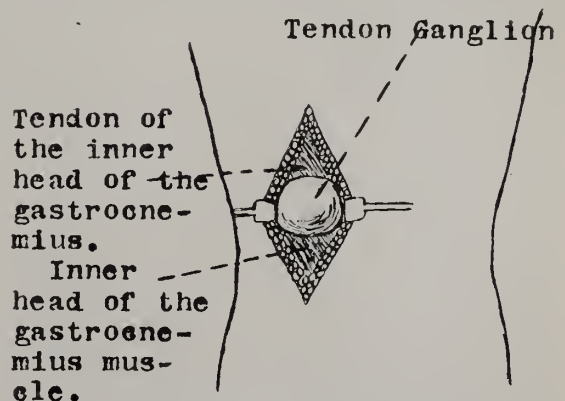
Binnie says that those cases, which cause neither deformity nor annoyance, should be treated with contempt. A very large number of tendon ganglia do not cause deformity or annoyance, and in such cases this is unquestionably the best course to follow. When, however, there is annoyance or deformity the patient will demand relief.

Many of these tumors in the past have been dispersed by striking them with a book, thereby rupturing the sac into the surrounding tissue. This is rather an inaccurate surgical procedure. The cyst may be punctured with a tenotome and in that way the contents evacuated. Some surgeons inject iodoform or iodine into the sac after evacuation. A large number of ganglia treated by these methods will ultimately return. Clowes reports success by slowly injecting with a hypodermic syringe into the sac one c.c. or more of fibrolysin. The best method of treatment is complete aseptic excision. This can usually be done under local anesthesia.

I shall report a rather unusual case of tendon ganglion. The case was referred to us on the 18th of last December by a physician of Nottoway County. The patient was a large muscular man, 38 years of age. He gave a history of having, in the summer of 1922, fired heavy engines on the railroad which were not equipped with stokers. After a few months of this strenuous work, he felt an annoying pain in the right popliteal space, which was greater when using the leg. Later he experienced some weakness in the leg and could feel a very slight enlargement behind and just below the knee. The condition became more annoying, and he had to stop work.

On palpation, we could make out the slight enlargement in the popliteal space just below the knee and to the inner side of the tendon of the semitendinosus.

On account of the muscular development of the patient and the large amount of superficial fascia in this area, nothing more definite could



Large tendon ganglion on the flat tendon of the inner head of the gastrocnemius muscle.

be obtained from the examination. Under local anesthesia an incision was made over the enlargement about two inches long just inside the tendon of the semitendinosus. Much to our

surprise, when the tumor was exposed, it proved to be very much larger than we calculated from the examination. It was as large as a walnut and was densely adherent to the sheath of the flat tendon of the innerhead of the gastrocnemius muscle. The tumor was dissected free from the tendon and the wound closed with fine catgut.

Laboratory examination of the tumor showed it to be a tendon ganglion about 4 centimeters in diameter. It was a monolocular cyst with a connective tissue capsule 1 centimeter in thickness, and contained a jelly-like colloid material. Letters, within the last few days from the physician who referred the case and from the patient, report a good recovery and complete relief from the symptoms.

This location of the ganglion was unusual. The depth of the tendon under the superficial fascia made the examination difficult.

Under these conditions, the diagnosis, before excision, was very uncertain and this, together with the rarity of a ganglion on the head of the gastrocnemius, prompted this article.

As a summary I wish to mention the three points I considered worth while in writing this paper:

(1) Tendon ganglia, although not serious, are very common. As they are considered more or less harmless, the condition is seldom discussed. It is a fact, however, that they may cause trouble, and a discussion here of tendon ganglia would not be without value.

(2) I desired to report the large tendon ganglion found on the flat tendon of the inner head of the gastrocnemius muscle.

(3) The possible presence of a tendon ganglion causing an aggravating and annoying muscular or tendon symptomatology should not be overlooked.

REFERENCES.

Ashhurst: Surgery, Principles and Practice, p. 281.
Binnie, John Fairmairn, M. D.: Keen's Surgery, pp. 456, 457.
Borchardt, Moritz: Ganglienbildung in der Sehne des Musculus Triceps, Brachii. Archiv. fur Klinische Chirurgie, 1900, LXII., 443.
Clowes, E. F.: The Treatment of Ganglion, Guy's Hospital Gazette, 1910, XXIV., 103.
Evans, Chas. Seth. Ganglion and Teno-Vaginitis Tuberculosa. Am. J. M. Sc., Phil., 1892, n. s., ciii, 643; civ, 38.
Franz: Ueber Ganglion in der Hohlhand. Archiv. fur Klinische Chirurgie, 1903, LXX., 973.
Ganglion of the Wrist Region with Report of Two Cases, Showing Distinctive Tendon Involvement. Canad. M. Assn. J., Toronto, 1921, xi, 723, 726.
Howard, Russell: The Practice of Surgery, 3rd Ed., pp. 366, 367, 1922.
Ledderhose: Die Aetiologie der carpalen Ganglien. Deutsche Zeitschrift fur Chirurgie, 1893, XXXVII., 102.
Ochsner, A. J.: Surgical Clinics, Excision of Ganglion from Hand, Feb., 1919.
Sajous: Analytic Cyclopedia of Practical Medicine, Vol. VIII., p. 510.
Thorn, Julius: Ueber die Entstehung der Ganglien. Archiv. fur Klinische's Chirurgie, 1896, LII., 593.
Warbasse: Surgical Treatment, p. 818.
Wharton and Curtis: The Practice of Surgery, pp. 419, 420.

HOW CAN THIS WOMAN BEST BE DELIVERED?*

By C. J. ANDREWS, M. D., F. A. C. S., Norfolk, Virginia.

A considerable majority of labors will terminate spontaneously without any particular mechanical assistance. While this fact has been most fortunate for the development of the human race, there is a considerable number who have suffered severely on account of it. There are, at least, several ways by which this seemingly good prognosis results in misfortune for the minority.

So far as the individual is concerned, pregnancy and labor are often regarded as of minor importance. As one evidence of this may be cited the low comparative value placed upon the services of the doctor who delivers them. It is a matter of common knowledge that the average patient will willingly pay more for a simple appendix operation than for the most difficult labor. This often results in the labor being planned on the cheapest plan possible, and, to some extent, is responsible for the midwife problem.

The fact that so many women pass through pregnancy and labor without any recognized untoward event is, no doubt, responsible for the attitude of the general public to this question. Probably very few know that childbirth as the cause of death ranks with tuberculosis and heart disease. About fifteen or twenty thousand die yearly in the United States from this cause. In the City of Norfolk last year thirty-one women died in childbirth. This country has the worst record in regard to puerperal mortality of all civilized countries except Spain and Belgium. The loss of infants as still births and during the first days of life is also notoriously high. In this city last year there were one hundred and thirty-six who died in the first month of life. The record here, however, no doubt compares favorably with other localities. It is impossible, of course, to get any

*Read before the Norfolk County Medical Society, March 24th, 1924.

figures on the morbidity, so far as the general public is concerned, but we know that morbidity and disability due to accidents of pregnancy and labor are very great. It is also known that nearly all these deaths and a considerable amount of morbidity are avoidable. The economic loss to the country from these causes can scarcely be over estimated. If these things were known and appreciated, the public, if properly directed, would possibly go far toward securing relief.

The Shepherd-Towner Bill was intended for this purpose, but for many reasons has, even where placed in operation, fallen far short of the mark. The mistake seems to have been made of planning to remedy this condition outside of the medical profession. It will not be done.

It is, at least, interesting to speculate on the possible means of attacking this problem. Using our city as an example, it is evident that the larger percentage of loss is among the negroes and poorer whites. At present we are not prepared to give these any considerable help. Labor cases among the city poor have always been a source of embarrassment to the Health Department, as they were not prepared to give help except it be an operative case, which must be admitted to the hospital.

An organized clinic employing doctors who are recent hospital graduates, especially those who wish to make obstetrics a specialty, under the direction of more experienced men and with ample hospital facilities, both for the operative and abnormal cases, at least, would attack this problem at a vital point. This would cost considerable money, but so do many other things less valuable. This plan might have some valuable by-products. It has been said that the teaching of obstetrics is inefficient. No doubt it is, but granted that a student has had the best available college training with internship in a general and maternity hospital, he will not develop unless he has work to do and some means of support. These being supplied and, in addition, virtual apprenticeship under those of more mature experience, we could with confidence expect a tremendous increase in the efficiency of the obstetrician of the future, and certainly a great waste would be avoided.

It is possible also for the doctor to be a victim of too great confidence in the favorable prognosis. It may be predicted with reasonable accuracy that any one who attends obstetric cases, no matter what his training or experience, will encounter more than one case which will give him great anxiety, and about which, when the case is finished, he will have serious doubts as to whether the patient has been handled in the best possible manner.

I regret to say that I have nothing new to offer any one in this dilemna. It may, however, be well for us to take stock occasionally of some of the available methods and procedures. It is highly desirable that a woman have every care during pregnancy and puerperium, but whether she has this or not, she must be delivered.

Disproportion Between the Size of the Fetus and Pelvis

Management of this condition begins during pregnancy with measurement of the pelvis. It is needless to say that any case might fall within this class, and consequently every case should be carefully measured. All measurements of the pelvis should be recorded, but the diagonal conjugate, from which the true conjugate is estimated, and the bi-ischial are most important. If the degree of contraction is found to be absolute the problem is simple. Cesarean section is planned. Such conditions are very uncommon in native born Americans. It is often found in the colored race.

The measurement of the diagonal conjugate does not settle the question of competency of the inlet. A pelvis having a normal diagonal conjugate, and having an abnormal slant of the plane of inlet may not only have the true conjugate reduced, but the promontory may be so far forward that the head will necessarily over-ride and engagement be difficult or impossible. These cases are particularly dangerous, as they are not so easily recognized, and undue attempts at pelvic delivery may be made.

Williams found contraction of outlet to constitute forty-four per cent of all pelvic deformities. He places in this class all pelves having a transverse diameter of 8 cm. or less. If this is found it is necessary to measure the posterior sagittal diameter. The prospects of delivery will depend upon the relationship of these two diameters. If the transverse is short a posterior sagittal long enough to compensate delivery may be accomplished, but probably with more or less injury to the soft parts. He has devised a very ingenious scale to show this relationship.

If the measurements show the case to be borderline, the real problem is presented. The size

of the baby may usually be somewhat limited by limiting the diet of the mother. The effect of the diet is checked by the mother's weight regularly recorded. When the baby is within a few weeks of maturity, castor oil and quinine are given, and if labor is started in this way the test of labor is accomplished. Measurement of the fetus at regular intervals is helpful. Not only can the degree of maturity be estimated with reasonable certainty, but the prospects of delivery be considered. The occipito-frontal can be very accurately measured by pelvimeter. This is very easy in unengaged cases, and these are the ones which need it most. From the occipito-frontal the bi-parietal may be estimated by deducting 2½ cm. from the occipito-frontal, that is, if the occipito-frontal happens to be normal, or about 12 cm. Recently it has been shown that this does not hold strictly true for other diameters, and a table has been given by which exact measurements may be estimated.

McDonald states that he has never seen a woman normally delivered where bi-parietal diameter of fetus was greater than the true conjugate. McDonald's method of measuring the length of the fetus is very accurate. This, however, requires a vaginal examination, and, therefore, is not routinely used.

The height of fundus at full term is about 27 cm. measured with calipers. With the tape it may be 33 or 35 cm. Usually in measurements of this kind the baby will be found to be of average side, that is, 50 to 52 cm. long. After castor oil and quinine have been tried, if labor is not started but the head is engaged in the pelvis, we may either wait or consider induction of labor by gauze pack or bag. Some use pituitrin in small doses for this purpose. If the head still over-rides the pubis, waiting is necessary. After a time we repeat attempts to induce labor with castor oil. When labor does not begin the case is managed just as if we expected to do a Cesarean. No vaginal examinations are made. For the painful first stage morphine and atropine are given hypodermatically. If the patient does not take food freely and the case is prolonged, glucose is given by rectum.

Rucker believes the glucose to be oxytocic. It certainly does furnish fuel and helps to keep up the strength of the patient. When the os is fully dilated the membranes are ruptured under the most careful technique as to asepsis. The use of gas oxygen analgesia in the second stage will promote comfort and make possible a more thorough test of labor. It does not retard the uterine contractions as do ether and chloroform. The patient is not considered to have had a fair test of labor until she has had several hours with the os fully dilated and the membranes ruptured. During this time it is particularly necessary to frequently observe the character of the fetal heart. Any considerable slowing of the fetal heart is a danger sign. Any increase in the rapidity of the mother's pulse is a sign of exhaustion on her part. The most of these cases at least progress to a medium, or even low forceps, and many are delivered spontaneously. If the head, instead of entering the pelvis during this test of labor, continues unengaged, Cesarean is necessary. If the case has been managed successfully, either a low flap Cesarean or a classical may be done, but in all cases in which a test of labor has been given, the low flap cervical Cesarean is safer.

The management of over-term or over-size fetus is the same. Very little dependence can be placed in the history, but by careful measurement one can be reasonably sure of the development.

Version is not usually a successful treatment for these cases. Potter does not do a version in any case where the head cannot be made to enter the pelvis. As he does a Cesarean for about one in every twelve patients delivered, we would infer that he does not use version for cases expected to be difficult.

The neglected cases may call for craniotomy or pubiotomy or Cesarean with hysterectomy. Mendenhall considers the indication for craniotomy to be difficult delivery with a dead baby and with a conjugate of more than five or six cm., possibly some severely infected case with a weak baby and difficult labor.

Arthur H. Bill advocates pubiotomy for certain breech cases where one has failed to correctly estimate the size of the after-coming head. He feels that pubiotomy does not compete with Cesarean section, but it is in competition with craniotomy. Williams has recommended pubiotomy when the head is arrested in the pelvis with contracted outlet. Pubiotomy is at present used by very few obstetricians.

Malpositions

Harper believes that posterior positions are about as frequent as anterior. Of course, most of these rotate if labor is conducted successfully and the patient given plenty of time.

The location of the heart sounds does not always indicate the position of the back. If the back and small parts can be located the diagnosis is satisfactory. Posterior position cases do not usually begin labor so promptly as normal cases, and in this way we may have an over-time fetus and posterior position combined. This is not a very infrequent occurrence. If the diagnosis of posterior position is made before labor begins, the patient is advised to lie on the side opposite to that occupied by the back. This will encourage a change of position. During the first stage of labor this may also be helpful. Those which require help may be treated in several ways. Pushing the head out of the pelvis, rotating with the hand and making it engage with forceps may be used, or it may be rotated with forceps and delivered. The important thing here is to see that it is rotated before delivery is attempted, and to make a cephalic application. If necessary introduce the hand into the vaginal tract and satisfy yourself of the exact condition before anything is done. Particularly see that the cervix is fully dilated. Version has served me well in several difficult posterior cases. While I think very few people agree with Potter as to indication of version, I believe most of those who are familiar with Potter's work think very highly of the method of version which he uses. To me it has been most helpful.

Face presentations may be treated by pushing the head up and correcting position manually and making head engage correctly with forceps, then leaving the delivery to nature. I have succeeded in this once. Some face cases are delivered spontaneously, provided the chin rotates anteriorly. Some arrested face cases may be delivered by forceps with chin anteriorly, but this is usually difficult. If we are reasonably sure that there is no disproportion between the size of the head and pelvis, version is probably the safest way to manage the difficult face cases. The same rule applies here as elsewhere. If the head does not engage do not use forceps or version, but do a Cesarean.

512 *Taylor Building.*

SOME CONSIDERATIONS OF CHRONIC CONSTIPATION.*

By J. E. MARABLE, M. D., Newport News, Virginia.

The subject is an old one. I have no doubt that long before Mother Eve discovered a use for the leaves of *Ficus Carica* she was driven by necessity to use its fruit for a more urgent, if less aesthetic, purpose. Certainly a perusal of the Pharmacopeia would lead us to believe that man turned early to the vegetable kingdom for pharmacological relief from what must have been a very ancient evil. From beginning to end, the Ninth Pharmacopeia, which itself has undergone considerable purgation, contains forty odd, separate and distinct drugs that claim the various titles of laxative, carthartic, purgative. And this number does not include the many variations of each drug, such as extracts, fluid extracts, infusions, mixtures, pills, powders and the host of proprietary modifications that delude the laity and enrich manufacturers and vendors of patent medicines. And the tragic part of it—a momentous fact that does not appear in the Pharmacopeia nor on the labels of nostrums—is that they have nearly all caused more constipation than they have cured.

By constipation is understood that condition in which there is insufficient fecal evacuation. This insufficiency may relate to the quantity evacuated or to the frequency of evacuations. Some individuals may have a bowel movement every day and still be constipated; others may have an evacuation every second or even every third day and apparently suffer no inconvenience nor discomfort from such a state of affairs. Evidently, the physiological normal is very variable.

In the great majority of cases, habitual constipation is purely a functional disorder, and in nearly all of these it is an acquired condition, due to faulty habits. The conditions of modern life have a powerful influence on increasing the number of those suffering from chronic constipation. The refinement of many of our foods, the decreased ingestion of water, the convenience and popularity of motor transportation, the tendency to drift to cities where there is lessened bodily exercise, have all contributed to the development of constipation. The repeated failure to obey promptly the desire to defecate results in a blunting of the sensitiveness of the nerve terminals of the sigmoid and rectum and, if continued, the normal desire departs. The individual then, if left to his down devices, turns to laxative drugs for relief. These by over-stimulation and irritation raise the threshold at which intestinal stimulation is received and must be increased constantly in quantity or varied in strength.

*Read before the Walter Reed Medical Society, May 2, 1923.

The individual becomes convinced that he or she must "take something every night" and a vicious circle both physical and psychological is set up. In adults, business and social activities and frequently a false sense of modesty are allowed to dictate a postponement of Nature's demands; in children, school activities and the desire for uninterrupted amusement are frequently allowed to interfere. Nature's desire for defecation at a regular time is dulled and when the desire becomes sufficiently irregular, instead of trying to restore physiological action by return to hygienic habits, the individual attempts to assist Nature by using cathartics, with the result that each dose aggravates the condition it is intended to relieve.

Irregularity in time of going to stool is a frequent cause of chronic constipation. The nervous mechanism by which the intestinal movements are controlled has not been definitely determined, but the preponderance of evidence shows that the peristaltic movements are due to direct stimulation of the terminals of the intrinsic nerves, while the rhythmic movements are probably due to contractions of the circular muscle fibers directly stimulated through food distention. These movements are automatic and this activity is only controlled by the extrinsic nerves. The vagus probably carries both motor and inhibitory fibers while the sympathetic chain supplies inhibitory fibers only. It is reasonable to suppose that if this mechanism and the nervous mechanism controlling the two sphincters are trained to a systematic habit of eliminating waste material at a certain time each day, they are much more likely to properly fulfil this function than if the individual relegates the function to a haphazard time or one of convenience.

Constipation is generally divided into three groups: (1) Atonic, or that due to retarded intestinal peristalsis; (2) Spastic, or that due to spasmodic contraction of certain portions of the gut; and (3) That variety of constipation which is dependent upon, or due to, pathological conditions in organs other than the intestine itself. In group one, or those suffering from atonic constipation, we find a large majority of those who have habitually neglected to respond to the normal physiological desire. Also those individuals with exhaustion or weakening of the general nervous system from whatever cause are apt to fall in this class. There is nearly always a certain amount of dilatation of some portion of the large bowel with some degree of fecal stasis. Before roentgenological study of the gastro-intestinal tract became the every day procedure that it is now, atonic constipation was considered to comprise the vast majority of all cases. Now it is contended that the spastic variety is more frequent. This form of constipation is due to over-stimulation and irritation of portions of the mucous membrane, giving rise to hypersensitive areas. When these areas are irritated or stimulated, spasmodic contractions, with consequent peristaltic delay, occur at these points.

Another, and not infrequent cause of constipation, is spasm of the anal sphincters. This condition, when correctly diagnosed, is readily amenable to local treatment.

Constipation due to diseases of other organs is very common. Many acute febrile diseases are accompanied by a serious degree of constipation and there is no doubt that over-vigorous attempts on the part of both patient and physician to overcome the constipation sometimes lead to chronic constipation. The frequently obstinate constipation that accompanies chronic disease of the appendix and gall-bladder is familiar to all of us. Diseases of the lungs, heart, liver and kidneys are usually accompanied by more or less constipation. In these conditions the constipation is due to engorgement of the portal circulation and a hyperemia of the intestinal mucosa.

Recently there has been a popular advocation of bran and other coarse foods for the relief of intestinal stasis. Many of these foods have had professional indorsement but the pendulum is now swinging back and some authors are maintaining that an excess of very coarse food substances acts very frequently like the continued use of cathartics and, by irritating the mucosa, gives rise to spastic constipation. A diet that leaves a moderate residual bulk is desirable but a residuum that is very irritating is not.

With the view of determining in concrete figures the prevalence of constipation, I have reviewed 490 consecutive case histories. These histories were prepared by the internist, Dr. L. E. Stubbs, who courteously placed them at my disposal. They represent a variety of conditions and embrace a wide range of diagnoses. Considered as a whole they represent a more or less accurate cross section of human exist-

ence in this and the surrounding territory. The collection is made up principally of white adults and for this reason the figures bearing on the occurrence of constipation in negroes and children may not conform with those based on larger numbers of these individuals.

Of the 490 cases there are 249 white males and 10 male negroes. There are 226 white females and 5 female negroes. There are 28 cases under the age of ten years; 50 between ten and twenty years; 118 between twenty and thirty; 114 between thirty and forty; 74 between forty and fifty; 66 between fifty and sixty; 35 between sixty and seventy; 7 between seventy and eighty; and 3 between eighty and ninety years. Of the total 242, or 49.4 per cent show some degree of constipation. Of the 259 men, 111, or 43 per cent, are constipated; of the 231 women, 131, or 57 per cent, are constipated. There are 116 women who have borne children and 104 who are nulliparous, not including those obviously below the child-bearing age. Of the parous women, 77, or 66.4 per cent, are constipated, while 54, or 47 per cent of the nulliparous, suffer from this complaint.

The percentages of those constipated at the various ages are as follows:

	Males	*Females*
Under ten years	42%	45%
Ten to twenty years	25%	34%
Twenty to thirty years	51%	48%
Thirty to forty years	34%	63%
Forty to fifty years	43%	66%
Fifty to sixty years	52%	80%
Sixty to seventy years	42%	55%
Seventy to eighty years	100%	100%
Eighty to ninety years	0%	0%

In order to determine the degree of constipation, I have attempted to classify the constipation as severe, moderate, mild and irregular, basing the degree upon the patient's statement, incorporated in the history, as to the frequency or variety of laxatives or methods used to combat the condition. This classification may be more or less arbitrary but the careful nature of the histories makes the figures fairly accurate:

	Males	*Females*
Severely constipated	38%	52%
Moderately constipated	22%	18%
Mildly constipated	10%	9%
Irregularly constipated	15%	7%
Constipated, but the degree not stated	16%	15%

These last groups might fall in any of the four classifications.

To attempt to follow and determine the relationship between the condition which brought the individual to a physician, and that individual's constipation, would make this paper too long and probably more tedious than it is, but, I think it is safe to say that except for a small percentage of those with some abdominal derangement, the condition which brought them to a physician had little or no etiological bearing on the constipation. The converse of this, however, forms an interesting speculation for I do not doubt that many of these complaints might be traceable, directly or indirectly, to their constipation. Regardless of these considerations, the facts are: of approximately 500 individuals, most of whom are ambulatory patients, about 50 per cent admit some degree of intestinal sluggishness. The condition is more marked in women than in men; worse in women who have borne children than in those who have not. The percentage of those constipated in the first decade of life is high according to this analysis but this may not hold good for a larger series of pediatric cases. The other groups are large enough, I think, to furnish accurate information. The percentage for the different decades of male adults follows a variable curve and I am not prepared to say what, if any, particular significance is attached to this. In females, however, we do note a gradual rise in the figures from the second to the seventh decades. This, I judge, is largely due to irregular habits inaugurated during pregnancy and allowed to continue without correction. Also, I think that women, for one reason or another, are less inclined than men to be regular in the habit of intestinal elimination. They are more apt to allow household and social duties to interfere than are men and they pay the penalty for this neglect in their declining years with a dilated, ptosed colon, persistent hemorrhoids, and an intestinal tract that must be lashed into action by some more or less drastic purgative.

As for treatment of this protean condition I have little to say; each case must be judged on its own merits and treated accordingly. Excellent plans of treatment are given in the literature of today. But I do want to close this essay with a plea for prophylaxis. Nowhere does the time-worn maxim that "an ounce of prevention is worth a pound of cure" more aptly apply than here. The devotion of a few minutes daily to the establishment of a regular habit during the healthy years of

adolescence may mean the saving of many hours of discomfort and inconvenience in later years. Once the habit of chronic constipation is firmly established, so many vicious circles both pathologic and psychologic are set up that it is well-nigh impossible to restore proper physiological function and persuade the patient that it is not necessary to resort to the continuous use of drugs that he has come to regard as indispensable.

Mothers should be taught that, because an infant or child occasionally goes twenty-four hours without a defecation, there is no reason why it should be purged with some drastic cathartic and this repeated at more or less frequent intervals. If during, or following, an acute illness an individual develops a tendency to intestinal sluggishness, do not advise the continued use of any laxative until regularity, proper diet, and hygienic living have been tried. Give the physiology of the organs a chance to readjust itself and do not attempt to anticipate Nature, until she proves herself definitely helpless.

Everyone should be taught the fundamental importance of regularity in hygienic habits and particularly this should be emphasized to all young women before, during, and after pregnancy.

It is the opinion of some authors that constipation is not as prevalent now as it was some years ago but the figures just reviewed show that it is still far too prevalent. It is the opinion of the writer that, if intelligent supervision is exercised over an individual from birth until he is old enough to realize the importance of health himself, the number of those suffering from constipation can be very considerably decreased.

This paper does not attempt to cover the whole subject and much that is important has been left unsaid. However, let us remember that, while it is proper that the brilliant research into the causes and treatment of rare diseases should go forward, with all power to it, a little reflection and care directed to the more common and homely afflictions may not be without benefit to the human race.

131 *Twenty-eighth Street.*

ARGYRIA WITH REPORT OF TWO CASES DUE TO ARGYROL.

By T. DEWEY DAVIS, M. D., Richmond, Va.

Argyria in the generalized form is a condition resulting from the prolonged intake of silver, characterized by a typical slaty-blue discoloration of the tissues which is readily apparent in the skin. At the present time silver poisoning is a comparatively rare condition, but during the first half of the nineteenth century instances of argyria were not uncommon. This resulted from the extensive use of silver nitrate in the treatment of epilepsy and tabes dorsalis (Allen)[1]. During the last two decades the widespread use of organic silver salts is again increasing the incidence of argyria. This fact is illustrated by the two cases reported below.

Myers[2] in a recent article was able to collect forty-four cases. The first was reported by Sala in 1647. All of the early cases resulted from the use of inorganic silver salts. Since the introduction of the organic salts, references to argyria localis are comparatively numerous in the ophthalmological indices. This is to be expected since it is such a simple and painless procedure to instill a few drops of argyrol into an infected conjunctival sac or as treatment for a corneal ulcer. This is frequently done by the laity without the advice of a physician, or the physician may suggest the use of the drug without warning the patient of the dangers attached to its continued application. Frequently it is used as a nasal or throat spray when a portion of it is swallowed and absorbed into the blood stream.

A careful search of the available literature brings to light only three instances of generalized argyria resulting from the use of organic silver salts. Crispin,[3] in 1914, reported a case following the frequent ingestion of collargol for a gastro-intestinal disturbance. Tobler[4] reported a case in 1922, due to intensive collargol treatment by mouth and intravenously for biliary disease over a period of one month. Goldstein,[5] in 1921, described a case following the local use of argyrol in the throat twice daily for one year. Myers[2] states that Lochte's[6] case published in 1920, following twelve injections of silver arsphenamine, is not authentic as the author did not see the patient.

The exact method by which silver is absorbed, to be later deposited in the tissues, is not well understood. Myers thinks that the silver salt when taken into the stomach is converted into silver chloride which unites in the intestine with albumoses, proteoses or amino compounds to form colloids, which are

absorbed and carried to the tissues. These colloidal silver compounds are broken up when they reach a field where their charge is neutralized by electronic affinities of sufficient magnitude carried by the body colloids. The metal then combines with body chlorides forming silver chloride. This in turn is reduced by light, forming either the black oxide or metallic silver. On microscopic examination the deposit is seen to be confined almost entirely to the elastic fibres.

Case Reports

Case 1. Mr. A. (13383). Age 63. Seen October 9, 1922. He complained of "catarrh." General examination revealed marked arteriosclerosis with evidence of myocardial failure. His "catarrh" was in reality a chronic bronchitis. The skin showed a dusky, slaty-blue color. In view of his obvious heart condition it was difficult to determine whether this represented an argyria or a marked cyanosis. He was put to bed and given full doses of digitalis. His dyspnea and other evidence of myocardial weakness cleared up, but the skin pigmentation remained unchanged. Further questioning disclosed the fact that he had been spraying a 25 per cent solution of argyrol into the nose and throat for several months. This evidently was the source of his chronic silver poisoning as he had never used silver in any other form.

Case 2. Mrs. B. (14002). Age 49. Seen January 1, 1923. This patient complained of stomach trouble. Careful general examination was negative and her gastro-intestinal condition was regarded as functional. A peculiar bluish color of the skin was noted. It was learned on questioning her that she had been using a solution of argyrol on the gums at frequent intervals for several years. The appearance was typical of a general argyria.

These patients had no symptoms that could be attributed to the chronic silver poisoning. The typical appearance of the skin in conjunction with the history established the diagnosis.

Treatment of the condition is very unsatisfactory. To prevent its development should be our first effort. This can be done only by warning people against the indiscriminate use of silver salts. This is particularly applicable to physicians who habitually prescribe the compounds. A few words of warning when writing the prescription will prevent the patient from using the drug indefinitely and thus ward off the distressing result.

The silver once deposited in the tissues is difficult to dislodge. Bichloride of mercury, iodides and hexamethylenamine have been suggested. Crispin discovered the beneficial effects of the latter drug while treating his patient for an acute cold. It seemed to bring about a fading of the discoloration. This observation has never been entirely confirmed, possibly because of the scarcity of cases. At any rate, it deserves a thorough trial in the treatment of a rather permanent disfigurement.

608 *Professional Building.*

References.

1. Allen: Jour. A. M. A., 1906, 47:1829.
2. Myers: Amer. Jour. Syph., 1923, 7:125.
3. Crispin: Jour. A. M. A., 1914, 62:1394.
4. Tobler: Schweiz. Med. Wochenschr., 1922, 52:774.
5. Goldstein: Jour. A. M. A., 1921, 77:1514.
6. Lochte: Therap. Holbmonatsh, 1920, 34:792.
   Note: Jour. A. M. A., 1922, 78:1480.

CONQUERING DIPHTHERIA.*

By ROGER H. DuBOSE, M. D., Roanoke, Virginia.

Ten years have elapsed since Park and his co-workers began their investigations and experiments, in this country, concerning the immunizing of children with the toxin-antitoxin injection. Park's first formula was found to be too concentrated and caused a painful reaction. Various mixtures were then tried, and finally a suitable formula was found, less toxic, and just as beneficial.

As far back as 1895, Wernicke noted that guinea pigs, actively immunized by the injection of living bacillus and antitoxin, gave birth to immune young. Antitoxin was also found present in both the mothers and their offspring, for at least six months.

It is interesting to know that children under six months of age inherit from their mothers immunity against diphtheria. This period of immunity usually begins to disappear gradually, between the third and sixth month of life, and from then until about the age of six years the child has no immunity. After six years the individual begins to develop his own immunity. Out of 7,109 cases of diphtheria in the State of Virginia in 1922, there were 472 deaths, 84 per cent of that number occurring among children under nine years of age. Over three-fourths of all deaths in the state were among the white population.

*Read before the Roanoke Academy of Medicine, March 17, and before the Southwestern Virginia Medical Society, in Radford, March 20-21, 1924.

Since the last session of the American Medical Association, from June 1, 1922, to April 1, 1923, there have been in thirty states covered by health reports, 102,042 cases of diphtheria and, up to January 1, 1923, 5,584 deaths. These figures are taken from a report by Neff.

Park and his associates, at the end of two years, completed the immunizing of 90,000 school children against diphtheria. These children gave a positive Schick reaction before the injection. In the meantime, he gathered 90,000 children of the same age, who had refused the test and the inoculation, for comparison. It was found that among the 90,000 untreated children, four times as many cases of diphtheria developed as among the tested and inoculated children.

Schick's test, as you know, is a reliable means of separating the susceptible individuals from those who have antitoxin immunity. It is not necessary to do Schick's test on the pre-school age child, because at least 80 per cent are susceptible. It is much easier to inject a child at once, because of the slight amount of pain produced by the inoculation of toxin-antitoxin. According to Park, three injections are given, 1 c.c. each, of a suitable toxin-antitoxin mixture, at intervals of from five to seven days. This will enable about 85 per cent of the susceptible individuals to develop sufficient antitoxin to give a negative Schick's reaction, from one to six months after the last inoculation.

The use of toxin-antitoxin injections in infants under six months of age is not advisable, because of the inherited immunity. Two hundred infants were injected on the third, eighth, and eleventh day after birth, by Park and his assistants. At the end of one year the Schick's test was done on one hundred, and only 52 per cent gave a negative Schick's reaction.

In children from six to twelve years of age the percentage of susceptibility varies. Schroder, of New York, out of 30,000 children in 73 Brooklyn schools, found 42½ per cent susceptible. Zingher in the Manhattan schools, out of 52,000 children tested, found an average of 30 per cent susceptible, the highest being 67, and the lowest 13.6. It is also interesting to know that children over six years of age, from the well-to-do classes, living in uncongested districts, are more susceptible to diphtheria than those from the poorer classes living in more congested districts. Frequent exposure tends to produce immunity, which probably explains this rather alarming statement.

The children who should be given toxin-antitoxin are those of pre-school age. These are the individuals that Park and Zingher have proven are the most susceptible. In my own private practice, in the past six months, I have given toxin-antitoxin to about one hundred children. These children varied in age from four months to eleven years, only two being over six years of age. In the young there was only a slight reaction. In the older children about 10 per cent showed a moderate reaction. The oldest individual, eleven years of age, reacted more severely than any other case. The arm in this case was red, swollen and painful for twenty-four to forty-eight hours. The reaction which occurred in the majority of cases consisted of a small scaly spot about the size of a fifty cent piece. I did not do a Schick's test on any of the above cases.

It is always advisable to explain quite carefully to the parents that immunity will be slow and gradual. It varies in different individuals, usually occurring between the first and sixth month after the last inoculation. No individual, young or old, can be pronounced immune until we get a negative Schick reaction.

The duration of immunity, according to Park, is for at least six years in 90 per cent of the cases, and probably for the remainder of life. Toxin-antitoxin should not be given within two weeks after antitoxin because the toxin is over-neutralized by the antitoxin.

Diphtheria is a very treacherous disease, more prevalent in children from six months to six years of age, than during any other period of life. Since the discovery of antitoxin, the mortality has dropped from 45 to about 12 per cent. However, vital statistics reveal that diphtheria mortality has not decreased during the past five years. For example, in the State of New York, the mortality was 12.8 in 1917 and 16.8 in 1921. We have in the United States, yearly, from 150,000 to 200,000 cases of diphtheria, with a mortality of about 20,000.

From 80 per cent to 85 per cent of all cases of diphtheria, as well as deaths from the disease, occur in children under six years of age. In my opinion, the man is yet to be born who can look into a child's throat and make a

diagnosis of diphtheria. The reason so many deaths occur is because we wait to get a culture, and oftentimes the patient dies before we can get a report. Our leading pathologists will not express their opinion on a smear from a patient's throat. Those who do practice this method will eventually make a mistake. The best procedure is to give antitoxin, and in the meantime to obtain a culture. Certainly no harm can be done by giving the antitoxin and many lives may be saved.

In my opinion, physicians in general are not taking as much interest as they should in preventing disease. The science of medicine has long since reached the stage where all methods are used to prevent disease rather than treat it. Personally, I would like to see every infant in this city, from six months to twelve years of age, inoculated with toxin-antitoxin before 1925. By doing this we would save the lives of many little ones, and make diphtheria as much a thing of the past as typhoid fever. If every physician would familiarize himself with the subject of toxin-antitoxin, and encourage every mother and father with whom he comes in contact to have their children inoculated, I feel safe in saying that within five years diphtheria would be almost extinct. Our public health officer, about a year ago, appeared before various clubs in the city, explaining and advocating what other cities are doing to prevent diphtheria. No man can succeed without co-operation. He needs the enthusiastic support of every physician in order to carry on this work successfully.

In conclusion I want to emphasize that:

Children under six months of age have an inherited immunity against diphtheria.

All pre-school age children should be given three injections of toxin-antitoxin mixture (0.1 L. plus dose) at intervals of from five to seven days, without a Schick test. Eighty per cent of all deaths occur in pre-school age children.

It has been proven among untreated school children that four times as many cases of diphtheria develop as in the tested and inoculated children.

The inoculation of toxin-antitoxin is practically painless.

Immunity from diphtheria begins from one to six months after the last inoculation, and continues, in 90 per cent of the cases, for six years or more—in other words over the most dangerous period.

Toxin-antitoxin should not be given until at least two weeks after antitoxin has been given.

Frequent exposure aids in building up a natural immunity against the disease.

At the present time about 20,000 children die annually, in the United States, from diphtheria. In order to reduce this mortality rate, it is the duty of all physicians to advocate the administration of toxin-antitoxin to every child.

Anchor Building.

SUBACUTE BRONCHITIS.*

By PAUL DAVIS, M. D., Roanoke, Va.

Sometimes in our study of the unusual and mysterious diseases of mankind we fail to concentrate enough thought on the complaints which are so frequently classed, especially in the minds of the laity, as minor ailments. Of these, the most common, the most difficult to treat, and the one for which the doctor is most frequently consulted is bronchitis. This disease, since the recent epidemics of influenza, has been increasing in frequency and severity, and one type in particular has occasioned me so much difficulty that I desired to bring it before the Roanoke Academy of Medicine for discussion. This type I have classified as subacute bronchitis.

Few text-books classify bronchitis as other than acute and chronic. The acute form is supposed to last from one to five weeks and any case lasting longer than that is called chronic. But the words, "Chronic Bronchitis," usually convey to my mind, and, I believe, to the minds of most other medical men, the picture of a disease lasting over a period of years, with a tendency to exacerbations, and most frequently seen in the aged.

The disease that I wish to discuss fits neither of these classes and, in my opinion, is a definite and clear cut entity. The patient is usually first seen after about three weeks of illness. He states that the trouble began with a bad cold or with what he thought was a mild "Flu." Possibly he was confined to bed or the house for one or two days but did not consider himself ill enough to call a physician. Since then he has had a severe cough which is worse at night and worse after exposure to cold damp air. The cough is usually dry, slightly productive and paroxysmal. He is weak, has an

*Read at the meeting of the Roanoke Academy of Medicine, March 3, 1924.

erratic appetite, feels that he is going down hill generally, and thinks it best to consult a doctor before he gets worse. A history of night sweats and an occasional streak of blood in the sputum may be elicited.

The physical examination on such a patient is usually negative except for numerous sibilant and mucous rales over both lungs. These are often widely disseminated but most frequently confined to the bases. They are most constantly heard posteriorly between the scapulae. The pulse and temperature may be slightly elevated, especially in the early weeks, but are most often normal. There are no characteristic laboratory findings. Sputum, blood and urine examinations are negative in all uncomplicated cases. The X-ray may show some small areas of mottling which are suggestive of an early tuberculosis, but most frequently the roentgenologist reports no pathology.

With so few specific findings it is often impossible to make a positive diagnosis on first examination. Confusion is most likely to be caused by tuberculosis. Two chief factors must be considered before forming a definite conclusion. *First:* The history, which is fairly constant and typical. *Second:* The physical examination of the chest. In subacute bronchitis expansion is normal and equal on both sides. (Lagging at the apices is one of the earliest signs of pulmonary tuberculosis). There is a multiplicity of rales heard anteriorly and posteriorly over both lungs. Early tuberculosis is almost always unilateral and in a high percentage of cases limited to the apex. In subacute bronchitis I have as yet been unable to hear the crepitant rales after expiration and cough which are so characteristic of active tuberculosis. Possibly they are overshadowed by the louder rales but I rather believe they are absent because there is no involvement of the air vesicles in the lungs. Several examinations of chest and sputum with X-ray studies in suspicious cases should be made before attempting a definite diagnosis.

Treatment of subacute bronchitis is even more difficult than the diagnosis. I have found no line of treatment that has been entirely satisfactory in my hands, so I shall only attempt to offer a few general suggestions which I think are well worth while. *First:* Impress the patient with the fact that he does not have consumption, a fear that is usually foremost in his mind. *Second:* Give him to understand that he has more than a little cold and may expect to cough for several months. *Third:* Night air is to be avoided but fresh air and sunlight are beneficial. *Fourth:* Wholesome food, regular meals, and general tonic treatment are indicated. *Fifth:* Sedative cough mixtures may give slight relief but do not expect much from drugs of this nature. *Sixth:* Six weeks in a warm climate, such as Florida, is ideal and should always be advised if the financial condition of the patient will permit.

Before closing I am going to report one case that is entirely typical of the condition which I am trying to describe and clearly illustrates the likelihood of confusion with tuberculosis.

Physically, such a patient would do as well, or probably better, if he were diagnosed as an early tuberculosis and sent to a sanatorium, but I am strongly opposed to such a procedure. Sending a man to a tuberculosis sanatorium is similar to trying him for murder in that it leaves a mark which can never be eradicated. He may be proven negative and sent home with a clear record but all his acquaintances remember that, "He's the fellow who was sent away for tuberculosis." The insurance companies are afraid of him and, if he is able to secure a policy at all, it is with extreme difficulty.

I am not advocating a long delay in sending cases of incipient tuberculosis to a sanatorium but I do believe that if such a condition as I have described is recognized it may save a number of patients the anxiety and mental shock incident to being sent away as a case of tuberculosis.

Case Report

C. R., white, male, age 30, married 8 years.

Occupation—Telegraph operator.

Family History—Negative.

Past History—Usual diseases of childhood. Influenza during epidemic of 1917 and 1918. Typhoid fever in 1920. Has always caught cold easily.

Present Illness—First came for examination August 1, 1923. At that time he stated that he had been suffering with a severe cough and pains in his chest for two or three weeks. He had not been confined to bed but had had weakness, dyspnoea on exertion, and a poor appetite. He was losing weight and becoming very much concerned about his condition. No history of night sweats or blood in sputum. No other complaint.

Physical Examination—Temperature 98.8°; pulse 96; respiration 20. Fairly well nourished individual. Pupils equal and react to light and accommodaton. Throat and accessory sinuses examined by a specialist and pronounced negative. Teeth in good condition. Heart negative. Lungs—expansion normal and equal. No lagging at the apices. No impairment of resonance or change in breath sounds. Numerous scattered coarse and fine mucous rales, much more marked at the bases posteriorly. Abdomen negative. Extremities negative.

Laboratory Examinations—Blood Count: Reds 4,400,000; H. 85; whites 7,600; Polys 72; Lymphs 28; Wassermann negative. Urinalysis negative. Sputum, three examinations negative. X-ray Reports: X-ray examination of chest shows a number of enlarged glands around the hilus and an increase in the hilus shadows of both lungs. The upper lobes of both lungs show definite peribronchial infiltration and beading. A few small areas of mottling and infiltration are noted in the apex of the right lung.

Conclusions—The findings noted above in the upper lobe of the right lung are very suggestive of a mild tuberculous involvement and this patient should be carefully watched clinically for the next few months.

Diagnosis—Subacute bronchitis. Observation for pulmonary tuberculosis.

Treatment—Rest in bed for two weeks. Restriction of pastries, pork meats and cigarettes. Elixir I., Q. & S., t. i. d.

The patient slowly improved until the middle of September (six weeks later), when a spell of cold damp weather seemed to give him a relapse. Two weeks later he was not improving so he consented to go to Florida for six weeks. At the end of four weeks he returned for a short while. He had gained fourteen pounds in weight and said he was feeling better than he had in years. His cough had almost entirely left him. He announced, however, that he had secured a position there and expected to return for the remainder of the winter.

Physical examination of his chest at the time of his return to Roanoke was entirely negative. The X-ray report was as follows: X-ray examination of chest still shows a slight increase in the hilus shadows of both lungs and some peribronchial beading and studding along the first and second interspace branches in the upper lobes of both lungs. However, at this time there is no definite Roentgen ray evidence of a tuberculous involvement in either lung. The Roentgen ray appearance of the chest shows a decided improvement since the last examination September 26, 1923.

REFERENCE.

James A. Miller, New York. Subacute and Chronic Non-Tuberculous Pulmonary Infections. American Journal of Medical Sciences, 1917, Vol. CLIV., p. 805.

Lewis-Gale Hospital.

TUBERCULOSIS OF THE SKIN.
Report of a Case.*

By JAMES K. GRAY, M. D., Marion, Va.

Tuberculosis of the skin, while relatively infrequently seen except in the larger clinical centers, comes under the care of the general practitioner, in some form, more frequently than one would expect at first thought. Owing to the painless nature of the lesions and their tendency to chronicity, the case does not always come under the care of a physician as soon as it should, which in part accounts for many of the extensive involvements which could have been prevented by early diagnosis and rational treatment.

There are several different forms which tuberculosis of the skin may assume, chief among which are the following: (1) Lupus vulgaris. (2) Scrofuloderma. (3) Ulcerative acute miliary tuberculosis, and (4) Lichen scrofulosorum. In these types the bacilli have been demonstrated as present by microscopic examination, animal inoculation, and reaction to the injection of tuberculin has also been obtained as a further evidence that the bacillus of tuberculosis is the causative agent.

There are still other lesions termed tuberculides whose cause is disputed, being attributed by some to circulating toxins, but in which the causative organism has never been located. The assumption is probably correct that, except in cases due to traumatic infection, the disease is rarely primary but secondary to infection in some other part of the body.

Time and space will not permit of my going too deeply into a description of the different types, however suffice it to say that lupus vulgaris is the most chronic as well as the most resistant to treatment. Scrofuloderma, while of a rather subacute nature, tends to have acute outbreaks with delayed healing and probability of a recurrence after a number of years. Ul-

*Read at the meeting of the Southwestern Virginia Medical Society in Radford, March 20-21, 1924.

cerative acute miliary tuberculosis of the skin is usually due to auto-inoculation from a nearby focus of infection and is of relatively rare occurrence, being seen most often in connection with advanced disease of the internal organs. Lichen scrofulosorum is still more rare and is more often seen in children with tuberculosis of the lymph glands, bones, etc.

Whereas all the above mentioned forms of tuberculosis of the skin are stigmata of more serious involvement elsewhere in the body, yet many cases go no further than this and pass a lifetime in comparatively good health.

In the relief of lupus vulgaris, surgery has played a certain part, more especially in the early stages, by excision and perhaps skin grafting. As a rule, however, the involvement is so extensive by the time the case reaches the physician that this is not practicable.

It is a known fact that the X-rays and the shorter rays of the spectrum, or ultraviolet rays, have a tendency to inhibit the growth of bacteria. Hence, with a known causative agent and a means of combating it, we are at this time better fitted to treat this intractable disease than ever before. Before the discovery of the efficacy of these agents, local applications were used with not very great success. These still have their use but their failure in many cases may be attributed to their inability to penetrate deeply enough into the tissues to reach the organisms. The X-rays have their known penetration in the hands of the skilled roentgenologist and can therefore be brought into efficient use. The quartz lamp furnishes the richest source of ultraviolet rays and is explained as a vacuum tube of fused quartz containing mercury vapor, through which an arc is passed. The quartz bulb is used because it does not prevent the passage of ultraviolet rays as glass does. With such a lamp it is possible to produce a great concentration of ultraviolet rays, hence treatment can be given in a short exposure.

The commonest source of ultraviolet rays is sunlight itself, though not in great concentration. The well known phenomenon of sunburn is good evidence of their potency.

In the treatment of the case which came under my care, sunlight was the only source of rays available, yet proved to be very efficacious in the treatment of the case, as shown by the results.

Report of Case

Mr. C. P., a farmer, who was seen in October, 1921, complained of a skin trouble of two months' duration. Physical examination showed him to be a well nourished man with no organic diseases nor stigmata except that there was scarring of the back of the neck and sides extending upward to the temple on one side. The Wassermann was negative. Examination showed there to be an area of superficial ulceration extending from the cervical and post-cervical regions down over the neck, scapular, and deltoid regions. There were several small sinuses leading into broken down cervical glands and other indications to show that the case was apparently one of scrofuloderma. The general condition of the patient was good and he was not suffering acutely but his mental attitude was very gloomy and depressed. The first treatment instituted was cleansing the area and the application of boric acid ointment. This cleared up the gross infection but there was no tendency toward healing. I then applied a preparation made from the official citrine ointment or ointment of nitrate of mercury by diluting one-half with olive oil. This, however, proved to be too irritating and was further diluted to one-fourth strength. This was still somewhat irritating but was spread on flat dressings and applied to the affected area.

In addition to this local treatment, the neck and shoulder region was exposed to the direct sunlight, at first for two hours a day, later for six hours. In the beginning there was a good deal of suffering due to the irritation produced by this treatment, but within a week healthy granulations began to form. Within ten days the sinuses ceased to drain and by the end of three weeks healing was taking place rapidly over the whole area. A complete recovery was finally made with only superficial scarring. Since that time there has been no recurrence of the trouble and the patient has remained in perfect health.

In the case thus reported, we cannot say with certainty which was the more effective remedial agent, whether the nitrate of mercury ointment or the exposure to sunlight. Certainly, however, we have herein a practical and effective method of treating scrofuloderma and it is also to be hoped that in the hands of those skilled in the use of the X-ray and quartz light, lupus vulgaris may also be cured.

PNEUMONIA: ITS TREATMENT.*

By J. A. NOBLIN, M. D., East Radford, Va.

Pneumonia is a condition, not a theory; and when we face it at the bedside there is no formula, no scientific resource, that will alone meet the indication. So in this paper I will only briefly give the treatment that I have found most satisfactory.

In the first place the general surroundings should be made as comfortable and agreeable as possible. Patient should be in a room to himself, all others excluded except the nurse. Room should be comfortably warm with an abundance of light and fresh air. The chest should be protected with a cotton jacket. Have the patient change his position frequently, so as to avoid hypostatic congestion.

Here, as a rule, we are dealing with a self-limited disease; we may expect a certain life cycle of bacteria to continue in the body for a limited time and then disappear, leaving the patient to recover if he has survived this limit. The problem is to keep the patient alive a certain number of days and recovery will be practically certain.

The great danger, especially in double pneumonia and in the aged, is that of the lungs filling with exudate, blocking off the air cells and diminishing the supply of oxygen to the blood—thus causing carbonic acid gas poisoning. The toxemia frequently affects the myocardium; for this reason the heart must be spared as much as possible. Exertion on the part of the patient must be avoided. Do not make a complete examination of the lungs every day and never have the patient raise up, always examine on sides or back.

At the very beginning, if the toxemia is very marked, I give a large dose of calomel, followed in eight or ten hours with a saline. After this, an enema every second day will usually be sufficient. As a rule, few or no drugs are required in most cases of pneumonia. The need for medication must appear before any drug is given, except perhaps digitalis, which should be given before the heart muscle is in a state of inflammation or degenerated, and I might add quinine to combat the toxemia. Strychnine, caffein, sodiobenzoate, camphor and whiskey may be employed as stimulants in addition to digatalis. All these drugs are used for symptomatic reasons, but none, except perhaps digitalis and quinine, are a routine.

*Read at the meeting of the Southwestern Virginia Medical Society in Radford, March 20-21, 1924.

Abdominal distention is often encountered. This is due to paralysis of the intestinal muscles from the toxemia. This condition is often mistaken for typhoid. Turpentine stupes may be sufficient to relieve slight degrees of distention; more severe cases may require turpentine or glycerine enemata. Pituitrin, 1 c.c. hypodermically, may prove effective.

I have gotten excellent results from serum treatment, especially pneumonia phylacogen. I believe that serum treatment will in a short time be perfected to such an extent that it will practically be considered a specific.

Diet is not so important in the treatment, except that no food must be given which will interfere with elimination. Fluids must be given to increase the elimination by the kidneys, intestines and skin. I always insist on large quantities of water being given, at least four to six quarts in twenty-four hours. If fluids cannot be given by the mouth on account of vomiting or delirium, the Murphy drip method, or subcutaneous injections of saline solution may be resorted to.

Pain, delirium or restlessness can be controlled by morphine and I do not hesitate to give ¼ grain or more, always with atropine, as quiet and sleep are absolutely essential. Warm alcoholic sponging is always a routine for cleanliness. To relieve the cough I usually give codein or heroin.

I have seen cases taking practically every drug I have mentioned in therapeutic doses at the same time. I believe that careful and inspiring nursing, with medication as indicated, will lessen the death rate, and that the greatest danger is in over-treatment.

HYPEREMESIS GRAVIDARUM.*

By GEORGE A. WRIGHT, M. D., Abingdon, Va.

The so-called "physiological nausea" takes place in more than fifty per cent of pregnant women. This condition must not be confused with the "pathological" type of vomiting, in which there is constancy of nausea and frequency of vomiting, exhaustion, loss of weight and of sleep, salivation, hematemesis, fever and rapid pulse, and apparently all ingested food is returned, the patient becoming dehydrated, jaundiced, etc. These things, if not corrected, in due time lead to acidosis, coma and death.

It strikes the writer that the above classification of the types of vomiting of pregnancy

*Read at the meeting of the Southwestern Virginia Medical Society, in Radford, March 20-21, 1924.

is more practical than those generally advocated by authors. Under the physiological division, we would include such terms as reflex and neurotic, which conditions usually respond to a correction of a misplaced uterus, or treatment of an eroded cervix, with rest in bed in connection with a general line of treatment for the psychological effect; while the pathological classification would embrace only those cases in which there is a toxemia, with a definite pathology. That a purely physiological process should so frequently develop serious pathological phases, is an unsolved problem of scientific medicine. The fetus thrives as a parasite on the mother, who acts as host.

The theories advanced as to the cause of pernicious vomiting of pregnancy are about as numerous as the papers that have been written on the subject. The prevailing impression is that it is of toxic origin; that this substance, regardless of what it is, for it has as yet not been isolated, originates in the blood of the fetus or mother, though possibly in the placenta itself. "Recent studies suggest that the underlying factors of hyperemesis and its complications are to be sought in some toxemia depending on some disturbed liver function, and that the liver when underfed and its glycogen content becomes low, as seen in vomiting, the organ becomes a poor detoxifier and a vicious circle ensues."

Williams believes in endocrine unbalance, in that during the first three months of gestation, when there is no absorption into the mother's blood of corpus luteum, vomiting is more pronounced; and the fact that the administration of adrenalin has in many instances acted as a specific would tend further to corroborate Williams' belief.

It is common knowledge that in about eighty per cent of women there develops a perceptible thyroid enlargement during pregnancy. The para-thyroids become hypertrophied; and experiments have shown that healthy dogs, in which there had been previously done a partial para-thyroidectomy, would remain in health until they became pregnant, when they would develop tetany. We can through X-ray examination demonstrate pituitary gland hypertrophy, which fact is further confirmed at autopsy. The clinical evidence is manifested in the "coarseness of the features," as seen in pregnancy.

Someone has advanced the theory that hyperemesis ceases after the fetal liver has developed and begins its function; and, in as much as the chief pathology of this anomaly is located within the liver, this supposition is not without reason. Heretofore, nothing of a practical nature has resulted from the various tests whereby liver function could be accurately gauged. Let us hope that the Rosenthal phenoltetrachlorphthalein test, as reported in the *American Journal of Obstetrics and Gynecology* of January, 1924, will give additional information in this connection. At any rate, the results as reported in several cases suggest that "this test is a more accurate index of existent toxicity than variable clinical symptoms are, and that it may be possible by means of this test to anticipate the clinical picture."

Among other probable causes of this not uncommon condition are focal infections; and in all instances the importance of complete case histories with thorough physical examinations cannot be overestimated, thereby revealing some obscure existing condition, such as: abscessed teeth, diseased tonsils, sinus infection, chronic appendicitis, gastric or duodenal ulcer, gall-bladder disease, acute intestinal obstruction, cerebral tumor, etc., at the same time bearing in mind the possibility of a retroverted uterus.

The vast majority of cases of pernicious vomiting occur during the second and third months of gestation, rarely extending into the fourth month, and are seen in multipara as well as in primipara, and, according to Kerr in one out of 700 cases.

The toxic type of vomiting may be distinguished from the milder form in the greater gravity of its symptoms, and, second, through blood chemistry, although DeLee has worked along this line without forming a definite conclusion as to the merits of blood analysis as a basis on which to determine the necessity for emptying the uterus in toxic cases. "In the true toxemic cases there are evidences of disturbed metabolism in the blood and urine, upon which a differential diagnosis may be based." Williams was the first to show that the urine from such patients contains a high ammonia co-efficient, with an increased amount of total nitrogen excreted as ammonia, normally about five per cent; while in toxic vomiting it may reach twenty to fifty per cent. The urine is much darker than normal, of higher specific gravity, acetone and diacetic acid four plus probably, and albumin present, as a rule.

It is not until later in the course of the disease that tests are positive for bile, which when found is a serious omen. Blood changes show non-protein nitrogen greatly increased above normal, with urea nitrogen normal or decreased.

The one important pathological lesion in this condition is a central necrosis involving the lobules of the liver. Surrounding this necrosed area there is marked fatty degeneration of tissue. According to Losee, pathologist to the Lying-in Hospital of the City of New York, in all such cases coming to autopsy the above pathology has been found, the liver being much smaller than normal. In other words, all fatal cases of hyperemesis result in acute yellow atrophy of this organ, as contrasted macroscopically with the eclamptic liver, which is invariably conspicuously enlarged. The kidneys may show no change; however, as a rule, there is more or less necrosis involving the convoluted tubules.

The symptoms as enumerated in the beginning paragraph of this article give one a pretty definite picture of a case of toxic vomiting. However, in addition, it is proper that mention of certain nervous manifestations be made; that is, in well developed or advanced cases, the patient not only does not sleep but frequently displays delirium, which in connection with hematemesis (coffee ground), a continued acidosis after carbohydrate-soda treatment, the presence of jaundice with bile in the urine, increased pulse rate with arterial hypotension, would most assuredly solve the problem that has confronted the physician throughout the course of the illness: namely, when is one justifiable in instituting therapeutic abortion? The latter symptoms would indicate that the condition has progressed to a state where the life of the patient is in jeopardy and further delay may prove fatal. In this connection, I do not wish to place myself in the attitude of an abortion advocate; I am far from it. In this article I shall not include case reports other than to state that, of sixteen such cases under treatment, it was deemed necessary in one instance only to resort to this method of relief.

The essential point in the treatment of hyperemesis consists in combating acidosis. There are two factors absolutely necessary to a successful treatment: first, isolation of the patient; and second, a competent nurse in attendance. Outlining in a general way the manner of handling these patients, I will state that upon entering the hospital all food is withdrawn for a period of at least twenty-four hours; they are given a thorough gastric lavage, using one dram of sodium bicarbonate to the quart of moderately hot water. After an interval of rest, depending on the patient's physical condition, the colon is thoroughly emptied by high S.S. enema. If there are nervous symptoms, the patient is given a retention enema containing bromides and chloral, and in selected cases morphia, grain ¼, hypodermically; this followed by proctoclysis (Murphy drip), glucose-soda five per cent which is continued for an indefinite period, in so long as the marked acidosis and nausea persist; repeating the morphia according to indications to control rectal tenesmus and restlessness. The promotion of sleep with the correction of acidosis through the administration of glucose-soda by proctoclysis usually results in a marked improvement of the patient. However, there are exceptional cases in which it is expedient to resort to intravenous therapy, giving ordinarily from 300 to 500 c.c. dextrose-soda two and one-half per cent solution. Very favorable results have been noted; although we have observed in some instances a marked reaction following this treatment: therefore, intravenous treatment would not be advocated except under hospital advantages.

The one preparation probably more generally used, and which I give with few exceptions as a routine, is corpus luteum in 1 c.c. doses daily; although in instances where the drug was not given, the results of treatment were no different. Therefore, it would seem that as the condition of acidosis becomes lessened, there is a corresponding improvement of the patient. After a twenty-four hours' fast, following gastric lavage, an ice bag is put on epigastrium and the patient given ice cream.

Magnesium citrate, 4 to 6 ounces, serves a useful purpose in removing mucus from the stomach, and some of these cases retain this preparation remarkably well, it allays nausea in some instances. Ordinarily, the above line of treatment will bring desired resllts, although nausea and vomiting persist in exceptional cases and it becomes necessary to resort to duodenal feedings, as originated by Paddock. This, however, is no simple procedure under ordinary conditions for, in the presence of continuous nausea and frequent vomiting, the object is accomplished under decided difficulties, and in some instances it is of consolation to

have fluoroscopic facilities to ascertain if the tube is in the duodenum. The usual line of procedure is as follows: From 30 to 45 minutes prior to introducing tube, morphia gr. one-fourth, is given hypodermically; the naso-pharynx is mopped or sprayed with cocaine solution, and the tube introduced through nose rather than mouth, there being less nausea and gagging which facilitates matters to a marked degree and admits retention of tube with less displeasure on the part of the patient for a protracted time, thereby permitting repeated feedings.

Fischer's solution has its advocates, and in several instances has been used by the writer with most gratifying results, though without apparent effect in others.

The favorable results reported on the use of phenolbarbital (luminal sodium), which drug allays nausea and vomiting for a time, permitting the retention and assimilation of food, is of interest; and its method of administration is therefore recorded. This drug is administered in its purest form hypodermically, in one to two grain doses every four hours, ordinarily; though it may be repeated in three-hour intervals in such doses without untoward effect, according to R. Luikard, and has proven successful after failure of corpus luteum, intravenous dextrose and duodenal feeding.

In closing, I wish to quote DeLee, who says that "glucose has become standard treatment of hyperemesis gravidarum, but it will sometimes fail in pure toxicosis, as well as in neurotic forms of vomiting. We believe that the sugar metabolism is at fault, at least as a contributory cause, or as an effect of the disease; and we aim to supply the deficiency. Probably after we know more about the physiological action of insulin, we may be able to apply it to the treatment of hyperemesis."

The George Ben Johnston Memorial Hospital.

DIABETIC COMA, REPORT OF AN INTERESTING CASE.*

By J. J. GIESEN, M. D., Radford, Va.

R. F. J., white, male, age 20, single. Occupation taxi-driver (formerly employee at N. & W. Shops). This patient came under my observation in the early part of December, 1923, consulting me for an acute Neisserian infection. At this time he gave me a history of lues contracted two years ago, for which he had received early intensive treatment and after six months, was pronounced "cured;" also that he had had diabetes for about eighteen months. The diabetes was checked up by urinalysis, which was positive for glucose in large amounts. At this time, his blood Wassermann was negative. The diabetic history, as given, was that about eighteen months ago, while receiving anti-luetic treatment, he gradually developed an excessive thirst, excessive urination with a frequent nocturia. A local physician whom he consulted for these symptoms diagnosed his condition as diabetes and referred him to the University Hospital, Charlottesville, Va. This was prior to the time that insulin became available to the profession. At the University Hospital he was given the usual work-out with a starvation diet and rendered sugar-free, then gradually worked up to a fairly liberal diet and sent home with instructions to follow this diet carefully and to report to his family physician once weekly for urinalysis. However, he failed to follow these instructions, began to use "patent medicines," was utterly indiscreet in his dietary and did not place himself under medical care. I warned him when I obtained this history that he was taking grave risks with himself and he agreed to resume the prescribed diet, which, however, if he did so, failed to affect his glycosuria or symptoms. He was then informed about insulin and it was suggested to him that he enter some institution properly equipped for working out insulin therapy, which he promised to do just as soon as his urethritis was relieved.

On December 24, 1923 (Christmas Eve), he reported to me for his usual daily attention and complained at that time of "feeling out of sorts;" he had a soreness in his right knee with some swelling, felt feverish, had a headache and was dizzy. I promptly suspected acidosis and checked his urine which was entirely negative for acetone and diacetic acid but contained the usual amount of sugar. My conclusion, therefore, was that his line of symptoms was due to a reaction resulting from an invasion of the knee joint by the gonococcus. I instructed him to go home, go to bed, and to use local applications to the joint to be followed in a few days by vaccine therapy.

About noon on the following day (Christmas Day), he was brought to Saint Albans Sanatorium in a profound coma which, according to the family, had developed about midnight,

*Read at the meeting of the Southwestern Virginia Medical Society in Radford, March 20-21, 1924.

having been preceded by restlessness, chills, violent headache and mild delirium on the evening before. At this time, the patient was moribund, respirations were stertorous, the pulse was thready and so fast that it could not be counted, face was flushed, body was rigid, his breath had the characteristic fruity odor, his reflexes were abolished, and death seemed imminent. He was immediately catheterized and the urine obtained was loaded with acetone bodies and sugar; it also contained at this time a liberal trace of albumin but no casts. A diagnosis of diabetic coma, which was obvious, was made. No insulin being available here at that time and having had no experience in its use, Dr. J. G. Davis, Christiansburg, Va., was called in consultation and requested to bring with him a supply of insulin. Awaiting his arrival, for want of something better to do, 500 cubic centimeters of physiologic salt solution was administered by hypodermoclysis, 2 grams of sodium bicarbonate administered intravenously, and his bowels were moved vigorously with a glycerine-magnesium sulphate enema given high with the rectal tube. When seen by Dr. Davis two hours later, his condition was practically the same, the heart action only being probably a little better. He was immediately given 15 grams of glucose intravenously, 20 units of insulin intravenously, and 40 units of insulin hypodermically. Caffein sodio-benzoate was also given hypodermically for stimulation. The glucose, insulin and caffein-sodiobenzoate were repeated every two hours, and at 11:45 P. M., eight hours after insulin was first administered, and after having received a total of 240 units of the drug, he was vastly improved and could be aroused from his coma; he was, however, completely disorientated and his bowels and bladder were incontinent. His condition on the following day was slightly better; repeated urinalyses showed persistent acidosis, sugar and albumin. Insulin was continued, 20 units hypodermically every two hours, with an occasional 10 unit dose intravenously, each dose being preceded by sweetened orange juice orally. Fluids were forced at all times, by mouth, by hypodermoclysis and by rectum. Under this plan, the patient rapidly improved and three days later was entirely conscious, began to complain of hunger, urine showed a marked reduction in sugar but with large amounts of acetone and diacetic acid persisting, in spite of the general improvement. The administration of insulin was gradually decreased and a liquid diet poor in carbohydrates but with a liberal amount of butter-fat started, insulin being administered fifteen minutes before each feeding. The diet was gradually increased and the insulin reduced until his urine became sugar-free for the first time on January 3, 1924, ten days after the onset of the coma. However, the urine continued to show moderate traces of the acetone bodies for several days after it became sugar-free. During this time, the right knee, which had undoubtedly been invaded by the gonococcus began to swell and became very painful, patient's temperature being elevated to between 99° and 102°. Stock gonococcus vaccine was given hypodermically in gradually increasing doses and the knee improved rapidly so that the patient was able to sit up out of bed on January 7th and began to walk on the 9th. He was discharged from the Sanatorium on January 10th, his urine being sugar and acetone free, was placed on a fairly liberal diet with instructions to administer 20 units of insulin fifteen minutes before each of three prescribed feedings. He and his family promised that he would promptly be placed in some institution properly equipped for working-out diabetic and insulin therapy, but so far he has failed to do this and has continued on the diet and insulin dosage outlined for him by me. He is now working, feels fine, has no urinary disturbance, has gained considerable weight and strength and looks the picture of health. His knee joint trouble has disappeared and his urethritis is apparently cured. He brings me an occasional specimen of urine which rarely shows a small trace of sugar but has not contained any acetone bodies.

No blood sugar determination was made on this patient because no apparatus for same was available. In spite of the lack of this pertinent information, huge doses of insulin were administered (some of them intravenously) because of the desperate condition of the patient, which demanded heroic measures. Untoward action of the drug, however, was forestalled by preceding the larger doses with glucose intravenously and, when the doses were reduced, by sugar and orange juice orally.

It is questionable whether there is any significance attached to the development of his diabetes coincident with a syphilitic infection, and whether the onset of the acute infection (the gonococcal arthritis) in any way precipitated the severe acidosis. These points are

mentioned simply because they are in his case history, which is being reported verbatim.

As I see it, the three striking features of this case are:

(1) The development of marked coma within twelve hours after his urine was free from acetone bodies.

(2) The presence of symptoms of impending coma with a urine negative for acetone bodies.

(3) The prompt response to insulin therapy in a case which had all of the ear-marks of a fatal outcome.

St. Albans Sanatorium.

THE SIGNIFICANCE OF INFECTION.*

By D. L. HARRELL, M. D., Suffolk, Va.

Recently no phase or field of medicine has been more productive of sane, sound etiological deductions than that of infection. With all the advancement, the radical changes in our opinions as to the cause of symptoms, and the marked benefit to mankind this revolution has brought about, and with continued developments, it causes us to believe that we have only seen the subject from the surface. Further study suggests that the two chief causes for disease and death are "infection and trauma." This classification of the causes of disease and death will give at least eighty per cent of our cases to infection and forms a good working basis for study. One of the greatest drawbacks to the advancement of the medical science has been giving of too many names to practically the same pathological entity. In trying to classify according to name one often gets lost in the confusion. It is easy to enumerate a great list of maladies already of accepted infectious origin, and difficult to name many that are not.

We are at present, observing the havoc wrought by chronic infection, and many times are able to trace back to primary foci, often in other organs or parts of the body, the true etiology to a chronic infection of years' duration, even to childhood. It may be a hopeless case of chronic nephritis may be traced to abscessed teeth, or a mitral regurgitation with failing compensation and death to infected tonsils. Such and other striking observations should be sufficient to inspire further study and closer observation, for all chronic infections have at some time been acute.

*Read before the Southside Virginia Medical Association at Lawrenceville, June 12, 1923.

The cure of every acute infectious process almost invariably means also the prevention of a chronic, and often incurable process. If extracting an abscessed tooth not only cures the toothache but prevents pyelonephritis, and the cure of an endo-cervicitis not only relieves the patient of leucorrhea but prevents rheumatism or some other dreadful malady, why not be more alert in the future and apply what little we believe and know about infection more practically for the good of mankind?

High blood pressure and its concomitant vascular changes, organic heart lesions, nephritic pathology, some of the respiratory diseases, pathological changes in the liver and gall-bladder, intestinal tract, spleen, pancreas, the blood diseases, and many other conditions manifesting chronic pathology, are probably preventable conditions, except in the aged, and their terminal infection passes patients to the great beyond.

Preventive medicine is not finished by controlling the communicable diseases. The restoration of a chronic dyspeptic to apparently normal health and well-being by the removal of the appendix or gall-bladder commands the gratitude of the patient, and justly so, because of its real service and it is in keeping with progress, but we cannot stop at this, as in all probability these are secondary conditions that are preventable. They demand further investigation until the primary focus has been located and removed. Our mission as physicians is to recognize in the acute infections an enemy whose purpose is to destroy health and life, and to feel our high moral obligation to patients so keenly that we will lose no time nor effort in annihilating it.

The two portals of entry for infection in the body are the outside and the inside—the skin and the mucous membrane.

First, The skin is of minor importance other than through trauma.

Second, The mucous surfaces may be divided into the respiratory system, the gastro-intestinal tract and the genito-urinary tract. Of the mucous surfaces we may mention in order the locations frequently manifesting infection as the tonsils, teeth, sinuses of the upper respiratory tract, stomach and small intestines, appendix, biliary tract, cervix, Fallopian tubes, urethra, prostrate and seminal vesicles in the male. It makes little difference how definite or indefinite a case history may be, it becomes our duty during the physical examination to pay

strict attention to each avenue of entrance for focal infection as a routine. In questionable conditions every known means of drawing correct conclusions should be exhausted. The development of the medical science has long ago passed beyond the possibilities of one man. It is not possible for any one practitioner to possess all the valuable qualifications, instruments and facilities for determining the existence, or location of infection. Many times it is necessary to call for assistance—it may be from the X-ray man, the eye, ear, nose and throat specialist, the urologist, or some other skilled in a specialty, who is able to ascertain the necessary facts before a true diagnosis can be made. The old plan of waiting for developments gives birth to our mortality, and must be superseded by early action and co-operation. So long as the patient is under our observation we are responsible for his safe keeping. Often a small tonsil that looks perfectly innocent furnishes enough poison to make and keep the patient an invalid. The same is true of focal infection wherever found in the body.

From time to time we are startled to see what wonderful progress is being made by the study of medicine from the standpoint of infection. One well founded idea giving birth to a new idea, and it to another, every stride brings us nearer the real goal of etiology. Many fields and phases that will finally yield even more abundant truth are yet undeveloped. The time is not far distant when we will be better acquainted with the endocrine system, and with the process of metabolism on account of a better knowledge of infection.

The surgeon has realized that his mortality is not entirely governed by the rigid aseptic technique at operation, being certain that no infection is introduced from without. More and more stress will be placed on the removal of focal infection, especially of the tonsils, teeth, and sinuses, because these pathological conditions at times possess a type of infection which when let loose in the general system after operation may bring about a fatal issue, when at examination the patient was apparently considered a good or fair surgical risk. It is hoped this idea will ultimately be of benefit in the class that all surgeons see with fear and trembling namely, obese women around the menopause.

In obstetrical practice, too much importance can not be placed on the removal of focal infection. It is best to have this done before the period of pregnancy begins, but in many cases this is impossible and the physician must decide as to the advisability of a tonsillectomy, tooth extraction, etc., during the pregnant state. These patients usually stand such surgical treatment without interrupting the pregnancy and it is often advisable.

I have briefly mentioned a few conditions met with in every day work, all of which have been previously discussed in the meetings of this society but they are intended to further emphasize the significance of infection.

In conclusion I wish again to call your attention to the fact that:

1. Probably eighty per cent of the disease and death throughout the land is caused by enfection, while the remaining twenty per cent will cover traumatic cases and a few others, such as chemical poisons, longstanding fear, starvation, extremes of temperature, etc.

2. Many of the chronic incurable diseases of middle and later life are preventable by the early removal of primary infection whenever possible.

3. The mortality in obstetrical and surgical practice can be decreased by a closer study and the removal of focal infection.

Lakeview Hospital.

A CASE OF PNEUMOTHORAX OCCURRING IN BRONCHIAL ASTHMA.*

By HUNTER H. McGUIRE, M. D., Richmond, Va.
McGuire Clinic.

F. E. F., a young man, age 27, married, was first seen during the latter part of September, 1923. He complained of attacks of asthma and weakness. His family history was entirely negative and there was no suggestion of any contact with tuberculosis. His past history was also practically negative, except for the asthma which had occurred in attacks ever since he could remember. He often went as long as a year or more without discomfort, and noticed that the asthma was more or less associated with "head colds," which as a rule preceded the attacks. They were more frequent in Winter than in Summer, and were more apt to occur in the South than in the North. He had never noticed relation between the attacks and any article of diet, and stated that they occurred in the city as well as in the country. Aside from this and having pneumonia in infancy, a tonsillectomy in 1913, and being of a nervous high-strung temperament, there was nothing of any significance in his

*Read before Richmond Academy of Medicine, March 11, 1924.

past. He really dated his present illness as commencing six weeks previously, at which time he had a severe spell of asthma with more or less constant discomfort ever since.

General physical examination was negative, aside from undernutrition and slight pyorrhoea. His chest showed nothing abnormal except for slight hyperresonance on both sides and sibilant rales scattered throughout both lungs. Examination of his blood, urine and blood Wassermann were reported negative. There was no eosinophilia.

In view of his history of the attacks of asthma being frequently preceded by "head colds," it was thought that his trouble was probably due to a sensitization to bacterial protein. It was suggested that he have the condition of his nose, throat and sinuses investigated and, should nothing be found requiring correction, that an autogenous vaccine, made from the post nasal secretion, be administered.

On December 6, 1923, ten weeks later, he was again referred to us for examination and treatment. During the time which had elapsed he had received repeated injections of vaccine made from his sputum. At first he apparently obtained some relief, but during the last month his symptoms became more marked. His discomfort was constant and consisted of difficult breathing, wheezing, and a sense of constriction in his chest. He also complained of palpitation, gaseous eructations, frequency of urination with nycturia, and weakness. He was unable to sleep and gave a history of loss of weight. During this time there was nothing in his history suggesting that anything unusual had taken place. He only stated that for the past four weeks his discomfort had been worse, and he felt that it was gradually becoming more pronounced.

Physical examination showed considerable undernutrition. His eyes were a little prominent. There was slight pyorrhoea. His thyroid showed slight fullness, and there was decided tremor of the fingers. On percussion his heart showed definite displacement to the right. Heart action was regular but rapid, rate 116 to the minute. Auscultation was negative, and his blood pressure was 108/65. The thorax was symmetrical and there was practically no difference in expansion on the two sides. The percussion note over the entire left chest was markedly hyperresonant and the breath sounds were scarcely audible. Trousseau's coin test was negative. Examination of the right lung showed no abnormality aside from scattered moist and sibilant rales.

X-ray examination of his lungs was reported upon as follows:

"Patient has a hydropneumothorax on the left side. The lung is uniformly compressed fifty per cent to sixty per cent. There is some displacement of the heart to the right. Approximately three ounces of fluid is seen. While there are a few discreet, well calcified tubercles present in the right lung, signs do not warrant a diagnosis of clinical unhealed tuberculosis. No gross lesion is found in the left lung. It would be difficult, however, to determine the presence of a small amount of tuberculous infection in the partially collapsed lung."

Examination of his blood was normal. Gastric analysis was negative except for moderate hyperacidity. His urine showed a specific gravity of 1,030 with abundant albumen, a few blood cells, an occasional pus cell, and occasional hyaline and granular casts. The pthalein output was sixty per cent in two hours' time. His blood sugar, non-protein and urea nitrogen were within normal limits. His blood Wassermann was negative.

Examination of his nose, throat and sinuses showed that the portions of both tonsils remaining were cryptic and contained considerable secretion. He also had a catarrhal ethmoiditis.

In view of these findings the following diagnosis was made:

"Hydropneumothorax (spontaneous): Bronchial Asthma; Chronically Infected Tonsils; Toxic Nephritis; Catarrhal Ethmoiditis; Gastric Hyperacidity; and Undernutrition." The question of increased thyroid activity was considered, but it was not thought advisable to do a determination of his basal metabolic rate.

The patient was advised to enter a hospital for a period of observation and treatment. He was kept in bed and given a diet directed toward the hyperacidity and the condition of his kidneys. Belladonna and potassium iodide were given orally three times a day, and adrenalin administered hypodermically when necessary.

On December 9th, 600 c.c. of air was withdrawn from the left chest. This was done by reversing the pressure in the bottles used in the apparatus employed in producing artificial pneumothorax. On December 13th, 750 c.c. of

air was withdrawn. The following day fluoroscopic examination of his lungs showed appearances identical with those found on the previous examination above reported.

During this time, notwithstanding this finding, he showed improvement in his symptoms. There was less difficulty in breathing, and he stated that he was more comfortable than he had been for several weeks. He ran no elevation of temperature, and his pulse ranged from 88 to 114, the amount of tachycardia depending upon the extent of his respiratory discomfort at the time his pulse was taken.

Daily examinations of his sputum were negative for tubercle bacilli, and his urine cleared up to a large extent. Urinalysis on December 16th showed only a trace of albumen and microscopically it was negative.

His sensitiveness to foreign proteins, including the common bacteria and foods, was tested and he gave no reaction to any of them.

It was advised that he have his tonsils removed, both on account of the nephritis, and because of the possibility of their being a factor in the production of his asthma. He was unwilling to have this done, and was finally discharged from the hospital on December 17, 1923, with instructions to report at certain intervals for observation, and for treatment of his throat and ethmoids.

On December 21st, 750 c.c. of air was again withdrawn from the left pleural cavity.

He was next seen December 28th. He had had no attacks of asthma but continued to complain of a sense of oppression in his chest and of wheezing and difficult respiration. Examination showed that he had gained in weight, and his general appearance showed decided improvement. His heart did not appear displaced to as great an extent, and the breath sounds over the left side were not so distant. There was still decided hyperresonance.

On January 28th fluoroscopic examination of his lungs showed that the pneumothorax had greatly diminished, and that the small amount of fluid previously reported had disappeared.

He was next examined on February 21st. During the time that had elapsed since he left the hospital, he had had three severe attacks of asthma. Between these attacks he remained fairly comfortable and was able to attend to his work. He felt much stronger and showed a gain of eighteen pounds in weight. Examination of his lungs was entirely negative, aside from moist and sibilant rales. His heart was apparently normal in size and position. Urinalysis was negative except for a trace of albumen.

X-ray examination of his chest at this time was reported upon as follows: "Thorax normal in shape. Some slight pleural thickening is seen in the right costo-phrenic and left cardiophrenic angle. There is general thickening of all bronchial branches. An occasional well calcified tubercle is visible in both lungs. Signs do not warrant the diagnosis of clinical tuberculosis in either lung at present. No evidence of fluid is found. The large pneumothorax on the left side, which was reported on previous examination, has entirely disappeared."

At this time a culture was made from the material removed from the crypts of his tonsils, and the growths reported as staphylococcus albus and aureus. A vaccine was made and a small amount injected intradermally. He gave a marked skin reaction in less than five minutes' time.

This case was considered of interest for several reasons, first, because of the apparent infrequency of pneumothorax occurring in an asthmatic. A careful search through a number of standard books and systems of medicine has failed to find mention of any relation between the two conditions. It is also unusual for pneumothorax to occur spontaneously in a lung apparently free from any pre-existing disease, and one in which no evidence of any active tuberculosis can be found. It is interesting to note that the removal of air from the pneumothorax gave decided relief from symptoms, although for a while it did not influence the position of the lung. This is probably due to the fact that it lessened the pressure of air within the cavity, even though it failed to influence the amount of compression of the lung. Finally, the marked and definite skin reaction to the autogenous bacterial protein, when there was no reaction to the stock preparations, is of interest. Among these stock preparations, staphylococcus albus was not included but the aureus was, and the two are closely akin.

The patient has shown decided improvement since he has been under treatment for the local condition of his throat and sinuses. He promises to have his tonsils removed in June. It is hoped that with the eradication of this focus and the clearing up of his ethmoids, his improvement will be even more marked.

1008 *West Grace Street.*

PSYCHOTHERAPY.

By GRACE BRYAN ROLLINS, A. B., Richmond, Va.,
Junior Medical Class, Medical College of Virginia.

A great many of the books and subjects that a student is called on to review are by their very nature radical and consequently keep one strictly on his guard against all irrelevant matter. Ideas must be weighed and carefully evaluated before they can be set down by the reviewer as workable tools. But it has been a great pleasure to me to review Psychotherapy. The most of the material has come out of the little book (400 pages) by Hugo Munsterberg called "Psychotherapy." It is interesting to note the aim of the book and a little something of the writer. Munsterberg says of himself: "One word for my personal right to deal with these questions, as too much illegitimate psychotherapeutics is heard today. For me, the relation between psychology and medicine is not a chance chapter of my science to which I have turned simply in following up the various sides of applied psychology. And still less have I turned to it because it has been the fashion in late years. On the contrary, it has been an important factor in all my work since my student days. I have been through five years of regular medical studies, three years in Leipzig and two years in Heidelberg; I have an M. D. degree from the University of Heidelberg. In my first year as docent in a German university twenty years ago, I gave throughout the winter semester before several hundred students a course in hypnotism and its medical application. It was probably the first university course on hypnotism given anywhere. Since that time I have never ceased to work psychotherapeutically in the psychological laboratory. Yet that must not be misunderstood. I have no clinic, and while by principle I have never hypnotized anyone for mere experiment's sake but always only for medical purposes, yet I adjust my practical work entirely to the interests of my scientific study. The limitations of my time force me to refuse the psychotherapeutic treatment of any case which has not a certain scientific interest for me, and of the many hundreds whom I have helped in the laboratory, no one has ever had to pay anything. Thus my practical work has strictly the character of laboratory research." This statement almost explains itself. I should merely like to add that the work which he has done has been done in the laboratories of Harvard University. I must frankly state that from the very start I have been in hearty sympathy with the general attitude of the book as a whole. It, however, has one serious drawback and that is that it was written about fourteen years ago and hence can not be considered the last word on the subject.

Psychotherapy is the practice of treating the sick by influencing the mental life. It is well recognized that there are many people who think they are sick when they really are not. Again many people are cured by charlatans who can not practice anything but psychology on their patients. In the following brief thesis I shall explain the psychological basis for such cures, and attempt to show how psychotherapy may be used along with regular scientific medication in the treatment of diseased conditions.

In psychotherapy the physician attempts to analyze the mental life of the patient and then by the use of suitable suggestions hasten the progress of the disease. He attempts to break down the life of his patient into its component parts and understand him from a causal point of view. But we must not get the idea that because the patient is being taken to pieces and analyzed that the physician is taking away anything from the beauty and unity of his character. When a physician analyzes a person and dissociates his personality into his working components, he does so only in order that the parts may be put back in a more harmonized and efficient form, thereby forming a more efficient person. The horologist takes a beautiful watch which is broken. In a few moments he has resolved it into a mass of wheels, springs and screws. Upon causal observation one might say that the horologist had entirely ruined the beauty of the watch. Of course the beauty of the watch has been ruined for the time being: but he has brought about a situation whereby the working parts of the watch may be again put together on a much higher plane. After he has finished with it, it is not only as beautiful as ever but it is now an efficient timepiece. The same thing is true of the physician. He attempts to take the personality to pieces in order that he may put it back together on a basis where it may again be efficient. Only by analysis can the obsessing idea be found and its evil eliminated. Hence the aim of psychology is not to show that man's personality merely consists of a conglomeration of sensations associated in the central nervous system, but to better understand the working of his mind in order that defects in its

functionings may be remedied and his whole personality be established on a higher plane.

Hence we are to look at life from two angles. We ordinarily think of the purposive view of life in our daily contact with men. When one does a certain act we do not stop to attempt to rationalize that action into cause and effect. It is merely purposive to us. But the physician in his practice of psychotherapy is forced to look on his patients from a causal point of view. He is merely interested in cause and effect and not in the purposive attitude of life.

This assumption of cause and effect makes it necessary to assume some physical system in the body whereby this process may be propagated. Of course this must be the central nervous system. Thoughts are compounded by a multitude of chemical reactions passing along neurones. This can be traced from the simplest reflex act to the more complicated reflexes of the spinal cord up to the highly specialized associative system of the cortex of the brain. The changes which are brought about and result as thoughts, sensations, etc., are changes in the strength, vividness and fusion of retained and newly acquired sensual processes. The cells to which a sensation goes give it its quality. Thus sensations passing to cells in the inferior convolution of the temporal lobe give rise to the sensation of hearing, those passing to the post central gyrus give rise to the sensation of pain, touch, hot, cold, etc. The intensity of the nervous impulse stimuli depends upon the intensity of the external stimulus, or upon the associations which arise and furnish it with an emotional vividness. We may look at this from a different standpoint. Thus, if a certain part of the cortex of the brain is destroyed, a certain function is destroyed along with it. If the precentral gyrus is destroyed, we lose the ability to produce voluntary movement. If any of the sensory areas are destroyed, we lose the ability to perceive that special kind of sensation which normally is received at that area. On the other hand, we can note the psycho-physical parallelism through the developmental scale. In the lower animals the cortex of the brain is not developed comparable to that of the higher ones. Cortical development goes along parallel with intelligence. Again, some of the lower animals have certain sense organs developed very highly. In every case there is a corresponding increase in the acuteness of the animal for that special sense. Thus the American Eagle has the optic center very highly developed, i. e., it is grossly very large in comparison with the rest of its nervous system. At the same time this bird is especially noted for its acuteness of vision. Hence we are forced to the conclusion that the development of the mind of an individual is in every way parallel to the development of the brain—environmental conditions being equal. Hence the mind of the individual depends upon the structure and associations of the neurons. Each individual neuron acts as a working individual and may be considered in a way as separate from the rest of the neurons. Yet it is the working together of these neurons which makes personality possible. The situation is similar to that of a great nation. The nation is made up of millions of individuals, each of which is essentially different in almost every respect from the other. His interests, life, morals, religion, and practically everything is essentially different from that of his neighbor. And yet at the same time all these millions of people working together make a great nation possible. The same thing may be said of the central nervous system. It is made up of hundreds of millions of associated neurons. But we cannot say that personality is a lump sum of neurons. Personality must be considered as the working together, as the final output of the interrelations of these neurons.

Since we have considered in some length the attitude which the physician is to take with reference to the individual, let us touch on the subject of applied psychology with reference to the treatment of disease. There is no reason here to go into a description of the value of the attitude of the mind of the patient with reference to his disease. I believe that it is a well recognized fact that the attitude of the patient towards his recovery has a profound influence on it. An optimistic and pleasant attitude on the part of the patient is always desirable. But psychotherapy would include more than that. In the first place it would take for granted the well established usage that the above should always be and always is practiced by all good physicians. In addition to the above, psychotherapy would have its place in both diagnosis and therapy of many different kinds of diseases. In the diagnosis of diseased conditions psychotherapy deals most successfully with those persons who are on the borderline of insanity. Prominent among these are the psychasthenics, neurasthenics and

hysterics. Here it acts like psychoanalysis in attempting to find the cause for the obsession and then curing it by psychological methods. On the other hand it deals with abnormalities in other parts of the body which are effected by the mind and abnormalities in other parts of the body which affect the mind. Hence as I have repeatedly stated the physician must take the causative standpoint in dealing with the personality of the patient, taking apart his mental workings and attempting to put them together on a higher plane.

But before we go further into the field and scope of psychotherapy, let us consider for a moment the basic principles back of the treatment. In the first place the physician may use two general principles: (1) Psychoanalysis, and (2) Suggestion. The physician attempts to arrive at the repressed complex which is causing the disturbance and, after finding it, by divers methods to rationalize it and release its energy or libido. Of course this method of therapy is limited entirely to the neurasthenics, psychasthenics, hysterics, etc. On the other hand, the field of suggestion is open to all forms of psychotherapy. By this means it is suggested to the patient that certain conditions come to pass until they actually come to pass. Suggestion is the closing of the path for the expression of the opposite idea, hence leaving everything free for the expression of the idea in common. Suggestion is very closely related to attention. The difference between suggestion and attention lies thus only in this: the motor response in attention aims towards a fuller clearness of the idea, for instance, by fixating, listening, observing, searching; while the motor response in suggestion aims towards the practical action in which the object of the idea is accepted as real. In attention, we change the object in making it clearer; in suggestion, we change ourselves in adapting ourselves to the new situation in which we believe.

Hypnotism may be also used as a form of suggestion. Hypnotism is merely an exaggerated suggestibility. The patient is brought into a condition where he takes everything that may come from the mouth of the hypnotist to be absolutely true, without the least question. The therapeutic effects of hypnotism have always been in question. The whole good effects of hypnotism lie in the assumption that the suggestions of the hypnotist are carried over into the waking state. This has been doubted by some authorities, yet Munsterberg seems to find that in some cases very excellent results may be gotten from hypnosis. For the general run of cases, however, he finds that suggestions in the waking state and light hypnosis generally give the best results. It seems that the suggestions are best received and best carried over when given in the light hypnoidal state.

In taking up the field of psychotherapy, I should like to state in the beginning that psychotherapy never cured any organic affection. Even in cases of neurasthenia where no known demonstrable organic disturbance is present, no definite cures can be promised. The patient may be cured of the particular obsessing idea but, unless other means have intervened, the patient is merely put back on the same plane where he was before the treatment, i. e., he still has his organic weakness and is liable again to gain another obsession if a suitable opportunity arises, although he may pass the rest of his life in peace. A sign of danger must be displayed in the use of hypnotism or suggestion in relieving the patient of certain organic pains. In many cases it has been found possible to relieve the patient of certain pains caused by organic disturbances. But this is to be carefully guarded against. Pain is nature's signal of danger and displays the fact that the organism is out of harmony with itself or its environment. When the pain is relieved, that does not cure the organic disturbance. But if the pain is alleviated, the patient may be hastened to his ruin because he does not treat or take care of the affected part and hence its destruction is hastened.

On the other hand there are diseases which may be caused by the influence of the mind. There is a surprising interrelationship between the mind and the body. The functioning of various organs depends upon a proper balance in the mind rather than in the organ itself. Especially to be noted among these are the digestive system and the heart. It is a quite well known fact that many people suffer from palpitation of the heart and digestive disturbances following any strong emotional outburst, especially fits of anger. But the mind exerts a more profound influence upon the individuals than this. The disturbance can be in only two possible places—either in the psycho-physical system itself or outside of it, that is in other parts of the body which are somehow under the influence of the mind. In the first case, when the disturbance occurs in the mind-brain

system itself, we ought to separate two large groups, first, those cases in which the system itself is normal and the disturbance comes from without, and second, those in which the constitution of the system itself was abnormal and led to disturbances under conditions in which a normal system would not have suffered. Accordingly we see that there may be an injury in the brain which will of necessity incapacitate the brain as far as that particular functioning area is concerned. Deafness, paralysis, etc., may be caused by this means. On the other hand stimuli from without may so upset the workings of the mind that serious complications set in. Here belong the phobias, obsessions, etc., of those who are on the borderland between normality and insanity. In the latter case, rather than in any other field, lies the real value of psychotherapy as such. Munsterberg has had a great deal of success with this class of people. He emphatically states that he has not had and cannot expect to have any kind of success with the totally insane. The organic defects of the brains of the insane are too much for the physician to cope with. The situation is similar to repairing a tire on an automobile. If the cut be a small one it may be vulcanized or a patch put in, but if the tire be old and nearly worn out with a large gash in it, the case is hopeless. Similarly with people, when the organic defect is small it may be patched over, but if there be a fundamental organic defect as there is with the insane, the case is hopeless and the physician is merely wasting his time by trying to use psychotherapeutic methods.

In the practice of psychotherapy, the attitude of the patient and the physician is very interesting and the right attitude on the part of each is very imporant. In the first place the patient must give his full co-operation to the physician. If the patient is not sincere, the treatment is surely going to be a failure. But, even despite every effort on the part of the patient to give full co-operation to the physician, it seems that he is predisposed to attempt to hide the obsessing complex. This is especially true in the practice of psychoanalysis where the obsessing complex is especially sought. But the physician has divers means for getting around this. By association tests, general history, dreams and a thousand and one odds and ends the physician patiently labors to come upon the obsessing complex and to overcome the natural resistance of the patient's mind. In the use of suggestion and hypnotism this phase of the situation is not nearly so important. Here there must be absolute co-operation on the part of the patient and a respect for the powers of the physician. The physician must conduct himself in such a way as to gain the respect of the patient; he must be sympathetic and sincere in everything that he does.

In many cases the trouble with the patient lies in his environment. Something may be wrong either at home or with his business. But the physician should be very careful in attempting to change these external conditions. Probably the trouble with a patient lies in the fact that his married life is not happy; but a physician should never suggest divorce. Yet in cases where slight changes may bring about desirable results these should always be advised. Plenty of sleep and rest should always be prescribed and the environment should be made as quiet as possible. The hustle and bustle of modern life has not the effect on the nerves that we are coming to be wont to believe. It is quite true that there has been a great change in life, but along with the change in life comes a change in what the nervous system of the person is used to. I may work with my window open to the hustle and bustle of the street and yet at the same time not be in the least disturbed. On the other hand, a person from the country who is less used to city life would be entirely distracted from his work. It is the sudden changes and emotional shocks which put a strain on the nervous system, not the mere quantity of stimuli; hence, nothing should be prescribed or allowed which will put an emotional strain on the life of the individual. This includes sexual excesses, narcotics, drugs, alcohol, etc. Even religion in the hands of the physician should be carefully used on account of its emotional power. Probably one of the best cures for a patient is to get him interested in something that will make him lead a real busy life. I do not mean that it should be necessary for him to sap his energy on some line, but he should be interested in something that will keep his attention busy. On the other hand I do not mean that mere employment will keep a person busy. A society lady may be busy night and day and yet not be employed. Why? Because her employment does not lead to an end. What is necessary is good, useful, interesting employment which has some attainable goal as its end.

But we have been talking only in general

terms. Let us consider some specific methods. In considering these special methods, let us not forget that the general methods are always in force and that everything discussed with reference to them applies to the specific methods. In the first place it is absolutely necessary that the physician take the right attitude towards the patient's symptoms. In most of the cases the physician should take an indifferent attitude, because the expression of emotions in any way is liable to have a disastrous effect. The patient is liable to get either hypochondriacal or feel that the physician has no feeling for him at all. Again it is highly desirable that the physician should convince the patient that he is suggestible. If the patient feels that he is not suggestible, some simple tricks of suggestibility should be played upon him so as to gain his confidence. After his confidence has been gained, the physician may proceed with his suggestions. The suggestions may be given either in a formal or casual way. The physician may say, "Tonight five minutes after you have gone to bed you will be asleep," or he may casually suggest that the patient will sleep that night. Again the physician may express his surprise at the patient's improvement as she comes in the door. Even the use of charms may be good. This is especially valuable when these charms have a religious significance. Relics of the saints, holy waters, things used by other patients who have been cured, etc., all may be used. The very fact that so many people have been cured in the physician's office has a profound effect. Autosuggestion has likewise been used with a great measure of success. The repetition of set phrases often produces the desired result. This last fact has been used to its highest degree in the work of Coue and his famous expression: "Every day in every way I am getting better and better."

One of the most effective methods of suggestion is hypnotism, which may be brought about in a variety of simple ways. One of the most simple methods is to have the patient stare at a bright object. Other methods are to merely suggest that he is hypnotized. Even the use of bodily sensations may be helpful. In these and many other methods the success of the hypnotist depends absolutely on the patient. No one can be hypnotized unless he wants to be. It takes the co-operation of the patient. It has been found that light hynotism is all that is necessary, though in some cases it seems that deep hypnotism is required. After hypnosis has been accomplished, any means of suggestion may be used that seems necessary or fitting to the case. The patient may be informed that the condition will not occur again, or the idea may be sidetracked into different lines. After the cause for the obsession has been determined, the experience may be made to repeat itself in the mind of the patient, with the change that the obsessing idea is no longer present as it was in the original setting. Thus a person may have a fear for any kind of a hole in the ground or for high places. It may be determined that the origin for this was that the patient, early in his life, when hurrying very fast along a dark street, came very near running into a deep ditch. The patient is hypnotized and made to go through the experience several times just as he did actually with the exception that, instead of stopping before he came to the ditch he jumped over it. A few treatments of this kind generally produce a cure.

Dr. Munsterberg does not believe that all mental symptoms can be cured. In the first place he finds that a great deal depends upon the efficiency of the operator and his ability to meet situations better than his patients. He does not expect the average psychotherapist to have the success with his patients as he himself has had, if for no better reason than that he has given his whole life to the subject. But there are many conditions which he does believe are accessible to the cure by the average practitioner of medicine using psychotherapeutic methods. Of these I shall mention a few. Symptoms of this type may be found in nearly every small village throughout the country and are not taken from startling cases which come to the attention of the medical world only now and then. In the first place may be mentioned the phenomena of the appearance of visual images. These images are accompanied usually with some emotional stress. The images occur at the slightest suggestion of anything in any way related to the content of the image. Such symptoms may follow the patient for years and he may be unable to get rid of them at all. Again a person may feel that another person has some peculiar influence over his life. In everything that the individual does he feels that he is being controlled by this other person. Still others merely have a fear that they are going to be afraid of something, though the actual fear never happens. I myself have just

a slight trace of this. Before I go auto riding I feel that something is quite liable to happen and that I am going to be afraid when the machine goes too fast, the causal factor being a recent accident. But when I actually get in the machine and the corners appear, I lose all sense of fear and feel as secure as if the car were standing still. Along in the same category may be classed the fear of heights, bright lights, thunder, etc. In dealing with such cases Munsterberg usually uses a light state of hypnotism in giving his suggestions, though sometimes deep states are needed. It is interesting here to note the success with which he has cured patients of alcoholism and of the opium habit. Anyone who is familiar with the disposition of the opium eater knows the difficulties under which the physician must work who is trying to break off a patient from the use of opium. Sufficient is it to say that such patients lose entirely all sense of honor. The patient may stay in a sanitarium for several months and come out apparently entirely cured and within a week he will be back at his old tricks. Munsterberg reports quite a bit of success with such patients. He reports the very interesting case of a man who had gone so far that he was taking the enormous dose of forty grains per day (the maximum therapeutic dose is iiss. gr.) His physical condition was such that he was hardly able to limp into the hospital. By suggestions, under light hypnosis, that the amount be decreased from time to time, the patient finally cured himself; I mean he limited his own dose, for he had a whole bottle of opium tablets in his room. Personally, I do not think that such cures could be expected from all cases. We should be satisfied if anything like a considerable per cent of them were cured. On the other hand, the reports of Munsterberg on this subject seem very favorable. Here, however, it is more important than in any of the other cases that the physician have the full co-operation of the patient.

We have been considering the cures of mental rather than bodily symptoms. Let us for a few moments consider the effects of psychotherapy on some of the body symptoms. Here, as above, we are not to consider the influence of the ordinary good cheer of the hospital wards on the progress of the patients, but on the more serious cases. One of the most fruitful fields along this line is the one which deals with hysterical anaesthesia. Various parts of the body may lose all sensations. This may be due to a destruction of a part of the central nervous system. In such cases nothing can be done. There are other cases where there seems to be no organic trouble. In such cases, under the influence of suggestion, the patient may often recover from the anaesthesia in the affected part. On the other hand the physician has had considerable success with attempts to build up new motor areas for those which have actually been destroyed in the brain. This is especially true in cases of paralysis where a portion of the precentral gyrus may be destroyed. What the physician attempts to do is to substitute some of the lower centers which are situated in the medulla oblongata for some of the higher centers of the brain. The case of insomnia throws still further light on the subject. Here the physician must first make a diagnosis as to the cause for the loss of sleep, for a great many bodily conditions beside pain may prevent the process of sleep from enveloping the individual. After the hindering condition has once been determined, the art of suggestion may be employed to relieve the conditions. But, as I have indicated above, probably the best results have been obtained from the use of suggestion on the digestive system. Here Munsterberg has had his greatest success. Digestive disturbances of considerable moment have been entirely relieved and along with them disappear some affections of the heart which seem to exist without any organic symptoms.

The evaluation of any science or theory is a very difficult subject. I believe that conservative scientists who could be interested in psychotherapy would enjoy a reading of Munsterberg's book. He tries to be conservative in everything that he says. He, himself, does not think that the world will ever be upturned by psychotherapy. He admits that it has a limited field, but he does maintain that this field has been entirely neglected by the majority of physicians. The idea is no new one. It has been practiced from time immemorial in a variety of forms. However, until of late years it has always been connected with the church. Miraculous healings are associated with every religion from our own Christian religion down to the simplest religions of the savages. As yet, however, it has never been put on a scientific basis. The religious fanatic may produce miracles but he has no idea as to how they were produced. Even today the same principles are the basis for the success of several

sects and some few charlatans. Whether it appear in the Emmanuel Church Movement, Christian Scientists or in the partial quackery of the chiropractors or what not, the principle is the same. But in none of these cases are these principles understood. They are practiced in a blind manner. There can be no doubt as to the fact that all of them do good, but the trouble with the situation lies in the fact that all diseased conditions are not subject to such treatment. Even the public is educated up to this point. Nobody would think of calling in a chiropractor if he thought he had appendicitis, nor would a Christian Scientist be called in to lance a boil or set a broken limb. But beyond these gross lesions the untrained mind of the public cannot go. Doctors are responsible for this condition. They should be so trained that they can make a distinction between those diseases which can be cured by psychotherapeutic methods and those which need some of the more gross and more physical methods of therapy. The medical profession will have to come to the recognition of the fact that psychology must be used in the treatment of disease as well as the knife and drugs are now used.

If we will look into the situation a little more fully, we may easily see the reason for this condition. The average run of physicians of the land are totally ignorant on the subject. Whatever psychology they happen to receive in their premedical work is so small as to be of no practical value. Now, even at the best medical schools the departments of psychology are insignificant or lacking altogether. This most important branch of medicine should become as much an integral part of the medical course as the study of bacteriology, physiology or pharmachology. When this period is reached, the public will come to have a great deal more respect for the medical profession and there will be no need to decide between the harum-scarum psychology of the quack and the really understood psychology of the efficient physician.

Correspondence

Whooping Cough

To the Anxious Mother:

In reply to your letter of recent date about Whooping Cough I am writing you about the best method we know for controlling the disease.

Whooping Cough is very dangerous to children under 5 years of age. One-half of all deaths from Whooping Cough occur in children under six months of age and 95 out of every hundred occur in children under six years.

Whooping Cough is catching. It is carried from one person to another by the moisture from the nose and mouth of a person who has the disease. Handkerchiefs, toys, drinking cups, roller towels and other articles recently used carry this moisture. They should be thoroughly washed and scalded, or, better boiled before they are used by any one else. Domestic animals, such as dogs and cats, may possibly spread the disease.

Whooping Cough is particularly catching just before the whooping stage which makes it difficult to control. Every child should be guarded from children and others who have a cold or cough.

Whooping Cough should be reported to the Health Office and houses will then have notices tacked on them so that babies and young children can be kept away from places where the disease is located. Children who have Whooping Cough should be kept to themselves, not necessarily confined in one room, but to the premises.

It is criminally dangerous for any one who has Whooping Cough to mingle in crowds even though he may be getting well. The bad practice which is so common of taking children with Whooping Cough to shows, churches, schools, etc.—MUST STOP.

Do not kiss babies. People with Whooping Cough should be 30 feet away from any other person. The State Board of Health recommends that every one with Whooping Cough wear a green ribbon on his sleeve, so well children will not go near him. Such device will become of great practical importance not only in Whooping Cough, but in the prevention of measles. Teach all children in the school room that the green ribbon means danger to them, and they must avoid going near a child wearing it.

There is a vaccine for Whooping Cough and it should be tried. Given to well children, it may keep them from having the disease. Again it may save the life of a child who has Whooping Cough.

Children should not be allowed to go about with others for four to six weeks from the time the disease starts.

A Field Director, State Board of Health.

Miscellaneous

THE STAUNTON MEETING OF THE MEDICAL SOCIETY OF VIRGINIA.

Why Staunton is a Place of Interest to Visitors.

By CHARLES MINOR BLACKFORD, M. D., Staunton, Va.

The annual meetings of the Medical Society of Virginia are always of interest and value to those who attend them, but the next meeting will be of unusual interest because of the place in which it will be held. Staunton is one of the richest towns in Virginia in points of historic interest and in attractions to visitors, especially to Virginians who are not familiar with the Valley, and aside from the instructive papers to be read and the pleasure of meeting old friends, a visit to Staunton is a matter to be remembered.

It is a strange fact, but none the less true, that most Virginians regard "Colonial Virginia" as having been confined to the tidewater region. This is not true, however, and the Valley is connected with several of the most romantic episodes of the pre-Revolutionary days. The Valley may be said to have been discovered in 1714 when Governor Spottswood and his band of "Knights of the Golden Horseshoe" marched up the Rappahannock River and crossed the "Blue Mountains," at Swift Run Gap, reaching the banks of the Shenandoah River in what is now Rockingham County. This expedition showed that the mountains were not impassable and that the Valley was habitable and easily cultivated, and a small but steady stream of settlers came into the new lands. German fugitives from the devastated Palatine had found refuge in the Cumberland Valley of Pennsylvania, and many of them crossed the Potomac and came into the Shenandoah Valley, as did numbers of Scotch-Irish Presbyterians who had found life in the old world almost unbearable under Queen Anne. On this account there were three distinct strains of settlers in the Valley—the English Churchmen, the German Lutherans and the Scotch-Irish Presbyterians, and the names of three of the Valley towns still preserve their memory—Woodstock, which is typically English; Edinburg, which is typically Scotch, and Strasburg, which is typically Palatinate.

In 1739 the House of Burgesses declared that all of Orange County which lay to the west of the summits of the Blue Ridge should be divided into two counties by "a line drawn from the headspring of the Hedgeman River," to the headspring of the Powtowmack River," and that all of the region to the northwest of that line should be known as Frederick County, and the remainder "to the uttermost limits of the colony" should be one county and one parish under the name of Augusta County and Augusta Parish. These counties were named for Frederick, Prince of Wales, son of King George II, and Augusta of Saxe-Gotha, his wife, and it is interesting to think that, had this prince lived and come to the throne instead of his brother who became George III, the history of America might have been changed. Augusta County as thus laid out, embraced a large part of what is now West Virginia, and all of what is now Ohio, Indiana, Illinois, Michigan and Wisconsin. It was to defend this part of Augusta County that Washington was sent with the Virginia militia on the ill-fated expedition under General Braddock. The countyseat was fixed at a new town, the site of which was given by John Lewis, a famous Valley pioneer, and the town was named Staunton in honor of Lady Staunton, wife of Governor Gooch, after whom Goochland County was named.

The lives of the early settlers in Augusta County were not lacking in excitement. There was more or less constant war with the Indians, and their French allies who occupied the country just beyond the Alleghany Mountains were a dangerous factor in the situation. On one occasion when John Lewis was very old and infirm, the Indians made a sudden attack on his home or "fort" at a time when all of his garrison was away, and for six hours the old man maintained a siege, firing from a porthole in the wall with his old wife by his side to reload the rifles. He kept off the assailants until the return of his sons and tenants, when the Indians fled. The old "fort" has been pulled down, but the house which now stands on its foundation, was occupied by Lewis during his last years, and his body is buried on an adjacent hill.

By the same act which created Augusta County, a new parish of the Church of England was established, and the parish church was located in Staunton. The first election held in the county was that for members of the vestry, but it was not until 1760 that a church building was erected. It stood on a site

now partly covered by the present building and, as Church and State were then closely connected, this old edifice was connected with many interesting events during the years of the Revolution. Its principal claim to fame rests on an incident which occurred in 1781. Colonel Tarleton, of the British Army, had been detached by Lord Cornwallis to make a rapid raid into Virginia with the purpose of capturing the State officials. The House of Burgesses and Thomas Jefferson, who was then Governor, fled to Charlottesville, but were pursued so closely by Tarleton that but for the warning of Jack Jouett, a Virginian Paul Revere, they would have been imprisoned. With but ten minutes to spare, the officials escaped to Staunton, and on June 7, 1781, the House of Burgesses met in Trinity Church. The session lasted three weeks, during which General Thomas Nelson was elected Governor, and the House then adjourned to meet in Richmond in October.

Some ten miles north of Staunton on the Lee Highway stands an old building which for the past hundred and seventy-five years has been known as "The Old Stone Church." During the stormy days following Braddock's defeat, the people for miles around used this sturdy old structure as a refuge from Indian raids, and many romantic stories linger in local traditions about it. Within the past few years a reckless passion for alleged improvement led the congregation of this historic parish to rebuild the church and thereby to destroy the odor of antiquity which had enveloped it, just as the same feeling led the vestry of old Trinity Church in Staunton in 1846 to demolish their sacred and historic building and erect the one which now occupies its site.

Two residences stand in Staunton which have national interest. One of these is the former home of Alexander H. H. Stuart, Secretary of the Interior under President Fillmore, and one of the leading statesmen of the middle of the last century, and the other is the manse of the First Presbyterian Church which was occupied by the father of President Woodrow Wilson while he was pastor of that church and in which the late President was born.

The points of natural interest and beauty within easy reach of Staunton are widely known. Weyer's Cave is but a few miles distant; the "Blue Hole" and the Natural Chimneys at Mount Solon can be reached by an easy drive over an excellent road, and the view of the Rockfish Valley from Afton is spread out before the eyes of every railway passenger from Charlottesville to Staunton. A longer automobile trip is that from Staunton to Monterey, crossing the mountains amid scenes of indescribable beauty, especially when the great national forest reserve is decked in its autumnal splendor. It is a wonderful sight, and one which every Virginian should see. Aside from the professional and social inducements offered by the Society meeting, every member who is not familiar with "The Valley" owes it to himself to come to the gathering in Staunton.

Proceedings of Societies

The Piedmont (Va.) Medical Society

Held its semi-annual meeting in Charlottesville, May 31st, Dr. E. D. Davis, of Stanardsville, presiding. The afternoon session was held at the University of Virginia Hospital, at which place clinical demonstrations were given by Dr. L. T. Royster on Care of the New Born; C. P. Howze on Renal Calculi; Dr. I. A. Bigger on Sarcoma of the Femur; Dr. H. B. Mulholland on Diabetes Mellitus in a Child; Dr. W. H. Goodwin on Laryngeal Stenosis Associated with Stricture of the Oesophagus; Dr. S. H. Watts on Lymphosarcoma; Dr. H. L. Baptist on Cretinism; Dr. J. H. Neff on Cyst of Kidney, Bilateral Ureteral Obstruction; and Dr. J. S. Davis on Muscular Dystrophy. Following a banquet at the Coffee House, the program was resumed, and papers were read by Dr. John A. Hornsby, new superintendent of the University Hospital, Dr. Frank Helvestine, Jr., Dr. A. F. Voshell, and Dr. D. C. Smith, all of the University.

The election of officers for 1924-1925, held at this meeting, resulted as follows: President, Dr. J. F. Thaxton, Tye River; vice-presidents, Dr. J. Fulton Williams, Charlottesville, and W. C. Mason, Gordonsville; secretary-treasurer, Dr. Lewis Holladay (re-elected), Orange.

The Norfolk County Medical Society

Held its annual meeting on June 2nd, and elected Dr. R. L. Payne, Norfolk, president; Dr. Stanley H. Graves, Norfolk, vice-president; and re-elected Dr. Lockburn Scott, Nor-

folk, secretary-treasurer. The following were elected delegates to the Staunton meeting of the Medical Society of Virginia: Dr. J. D. Collins, Portsmouth, and Drs. Mary E. Roche, R. L. Payne, Chas. W. Doughtie and George W. Schenck, of Norfolk. Alternates were to be appointed by the delegates in case of need.

The Walter Reed Medical Society

Held its annual meeting in Newport News, Va., May 14 and 15, under the presidency of Col. L. A. Thompson, of the National Soldiers Home, Va. Dr. L. E. Stubbs was in his accustomed place as secretary. The attendance was good, and the meeting was from all angles one of the most successful the Society has ever held. Officers elected at this meeting are as follows: President, Dr. George W. Brown, Williamsburg; vice-presidents, Dr. G. W. McAllister, Hampton, Dr. M. B. Beecroft, Newport News, Dr. L. C. Brock, Smithfield, Dr. C. B. Courtney, Newport News, and Dr. J. J. Cullinan, National Soldiers Home; secretary, Dr. L. E. Stubbs (re-elected), Newport News; and treasurer (a newly created office), Dr. J. E. Marable, Newport News. The date and place of the next meeting, which is to be held in the Fall of 1924, will be decided later by the Executive Committee.

The Medical Society of Virginia, Maryland and the District of Columbia

Held its regular semi-annual meeting in Alexandria, Va., May 21, at which time an interesting program was enjoyed by those in attendance, and luncheon was served between sessions. Officers elected for the coming year are: President, Dr. Howard Fletcher, Warrenton, Va.; vice-presidents, Dr. George T. Klipstein, Alexandria, Va., and Dr. Thomas M. Foley, Washington, D. C.; recording secretary, Dr. William T. Davis; corresponding secretary, Dr. Joseph D. Rogers; and treasurer, Dr. Robert Scott Lamb. The three officers last named are all of Washington, D. C., and re-elected.

The Medical Association of The Valley of Virginia

Held its regular semi-annual meeting in Harrisonburg, May 29, Dr. J. M. Emmett, Clifton Forge, presiding. Dr. A. F. Robertson, Jr., Staunton, is secretary of the Association. The attendance was large and interesting papers were read. Luncheon was served the members between the morning and afternoon sessions. It was decided to hold the next meeting in Staunton, at the time of the meeting of the Medical Society of Virginia, October 14-17, instead of in Clifton Forge, as provided in the regular order.

Analyses, Selections, Etc.

General Review of the New Arsenical and Bismuthic Medications in Syphilis.

The author's conclusions are:

From the ensemble of our study of the new arsenical and bismuth medications we believe that we have the right to draw the following practical conclusions:

(1) The intensive therapeutics of syphilis remain, at least for the present, in the hands of medications containing trivalent arsenic and having as the fundamental active constituent the base of 606, namely, aminoarsenophenol. For intravenous administration 914 (novarsenobenzol) remains particularly indicated: for intramuscular injection the base of 606 (preparation 132) comes to fill up a gap in the therapeutics by permitting, by the means of a simple technic, the obtaining of therapeutic results identical with those obtained with the intravenous method with especial advantage of a decreased toxicity, evidenced by the absence of shock phenomena (nitritoid crises) and the possibility of intensive treatment of patients intolerant to intravenous injections.

(2) Concerning the use of bismuth compounds we think that it should be given the advantage of further researches upon the determination of the dosage and the indications relative to soluble and insoluble salts. Particularly recommended in cases of specific lesions resistant to mercury and arsenic, perhaps, as recent work seems to show, it may be indicated in neurosyphilis.

Personally, we ourselves are in favor of intramuscular injections of soluble salts, reducing thus to a minimum complications inherent to bismuth, particularly the buccal accidents. Bismuth medication seems to us to be a complementary medication, certainly more active than mercury because it is possible to use it in much higher doses, but which, at least for the present, must give place in concentrated attacks upon syphilis to the arsenicals, of which the serological activity is much more considerable.

(3) The mixed arseno-bismuth treatment

under the conditions of technic which we have recommended, joining as it does the rapid treponemidical action of both products to the remarkable power which the arsenicals have of so quickly reducing the Bordet-Wassermann reaction seems to us to be a medicament with a future, particularly indicated where it is necessary to act vigorously and quickly.—(*M. Pomaret. Urol. cutan. rev., St. Louis*, 1922, *XXVI*, 760).

Bismuth Treatment of Syphilis.

Bismuth therapy has many advantages, especially if the signs of intoxication are well known, if the dose is well chosen, and the right preparation used. It is especially useful in visceral syphilis. It does not only cause the symptoms to disappear, but renders the Wassermann and the spinal fluid reactions negative. Whether, and in how far, this means that a cure is effected can not yet be answered. Spirobismol, Homburg, is a good preparation and combines the effect of the soluble and insoluble bismuth salts. It is superior to salvarsan in visceral lues. It contains in 1 c.c., 0.035 gm. metallic bismuth, 0.025 gm. iodid, and 0.015 gm. quinin. It is sterile and remains so when exposed to air. Intramuscular administration is not painful. It is absorbed very easily. The deposits cause no subjective discomfort. Even where 20 injections of 3 c.c. spirobismol, each, with a body weight of 60 kg., is made only 2 gm. metallic bismuth—that is, 0.033 gm. per kg. human body weight—is introduced. The average treatment gives no more than 1 to 1.2 gm. metallic weight.—(*J. Citron. Med. Klin., Berlin*, 1923, *XIX*, 1279).

The Truth About Medicine

In addition to the articles enumerated in our letter of March 27th, the following have been accepted:

Abbott Laboratories

Procaine-Epinephrine Ampules, 1 c.c. (Abbott)

Armour and Company

Anterior Pituitary Tablets, 2 grains (Armour).
Pituitary Tablets, 2 grains (Armour).
Parathyroid Tablets, 1/10 grain (Armour).

Lehn and Fink

Sagrotan.

Eli Lilly and Company

Iletin (Insulin-Lilly) U-40.

A. Lumiere Laboratories

Cryogenine.

Mallinckrodt Chemical Works.

Neoarsphenamine-Mallinckrodt, 0.15 Gm. Ampules.
Neoarsphenamine-Mallinckrodt, 0.3 Gm. Ampules.
Neoarsphenamine-Mallinckrodt, 0.45 Gm. Ampules.
Neoarsphenamine-Mallinckrodt, 0.6 Gm. Ampules.
Neoarsphenamine-Mallinckrodt, 0.75 Gm. Ampules.
Neoarsphenamine-Mallinckrodt, 0.9 Gm. Ampules.
Neoarsphenamine-Mallinckrodt, 1.5 Gm. Ampules.

Parke, Davis and Company

Pituitrin "S" (Surgical)

Ampules Pituitrin "S" (Surgical), 1 c.c.

Welty Company

Deodorized Kerosene—Welty.

Wilson Laboratories

Desiccated Parathyroid Substance—Wilson,
Tablets Desiccated Parathyroid Substance—Wilson, 1/20 grain.
Tablets Desiccated Parathyroid Substance—Wilson, 1/10 grain.

NEW AND NONOFFICIAL REMEDIES.

Cod-liver Oil—Squibb.—It has a content of fat soluble vitamin-A which is more than one hundred times that of best quality butter. For a discussion of the actions and uses of cod liver oil, see Useful Drugs. The average dose is 15 c.c. E. R. Squibb and Sons, New York. (Journal A. M. A., April 5, 1924, p. 1123).

Sagrotan.—A liquid composed of chlorcresol 8 per cent., chlorxylenol 4 per cent., soap 22 per cent., alcohol 9 per cent. and water 57 per cent. Sagrotan is an antiseptic and germicide. The germicidal efficiency of sagrotan is stated to be 2.5 times that of an equal quantity of phenol. While the germicidal efficiency of sagrotan is almost equal to that of compound solution of Cresol U. S. P., it has the advantage over this preparation in that it is almost odorless; also, it is claimed to be less toxic. Lehn and Fink, New York.

Procaine-Epinephrine Ampules, 1 c.c..—Procaine—Abbott, 0.02 Gm., epinephrine 0.00004 Gm. in Ringer solution, 1 c.c. The Abbott Laboratories, Chicago. (Journal A. M. A., April 12, 1924, p. 1199).

Deodorized Kerosene—Welty.—Kerosene which has been treated so as to remove the odorous constituents of commercial kerosene. Because of its solvent action on fats, deodorized kerosene-Welty is proposed tor use as a pediculocide and as a means of removing dandruff and the detritus of wounds. Welty Company, Chicago.

Anterior Pituitary Tablets—Armour, 2 grains.—Each tablet contains desiccated pituitary substance (anterior lobe)—Armour (see New and Nonofficial Remedies, 1924, p. 226), 2 grains. Armour and Company, Chicago.

Pituitary Tablets—Armour, 2 grains.—Each tablet contains desiccated pituitary body—Armour (see New and Nonofficial Remedies, 1924, p. 226), 2 grains. Armour and Company, Chicago.

Parathyroid Tablets—Armour, 1/10 grain.—Each tablet contains desiccated parathyroid gland—Armour (see New and Nonofficial Remedies, 1924, p. 224), 1/10 grain. Armour and Company, Chicago.

Pituitrin "S" (surgical)—A slightly acid aqueous extract of the posterior lobe of the pituitary body of cattle, approximately six times the strength of Solution of Hypophysis U. S. P., containing 0.5 per cent. of chlorbutanol as preservative. For a discussion of the actions and uses of pituitary preparations, see Pituitary Gland, New and Nonofficial Remedies, 1924 p. 225. The preparation is supplied in the form of ampules pituitrin "S" (surgical), 1 c.c. Parke, Davis and Company, Detroit. (Journal A. M. A., April 19, 1924, p. 1265).

PROPAGANDA FOR REFORM.

The Resistance of Malaria to Quinin.—In 1917, reports began to appear that English soldiers in the tropics were being attacked by malaria that quinin would not cure. A report was published that quinin was ineffective in cases that were complicated by dysentery. An extensive study has demonstrated that quinin will cure malaria and that dysentery does not prevent the cure. In these cases the physician administered the quinin by mouth and made sure that it was swallowed. A study of the intramuscular injection of quinin demonstrated that necrosis of the muscle always occurred and that the absorption was less satisfactory than when the drug is given by mouth. It was shown that there was a profound fall in blood pressure when quinin is introduced intravenously, and one case of death and one case of serious sepsis are reported. It was also found that quinin is too irritating to be administered by rectum. (Journal A. M. A., April 5, 1924, p. 1125).

Antipneumococcic Serum Types I., II. and III. and Polyvalent.—The New and Nonofficial Remedies' description of antipneumococcus serum stated that thus far only the Type I. serum seemed to be on reasonably secure clinical ground. In consideration of favorable reports on the use of antipneumococcic serum which, in addition to the Type I. organism, also represented Types II. and III. and Group IV., the Council on Pharmacy and Chemistry accepted such "polyvalent" serums. At its 1921 annual meeting, the Council considered the available evidence for the use of anti-pneumococcus serum. The conclusion was reached that there was a preponderance of evidence against the employment of a serum which represented organisms other than Type I. Accordingly, the Council has omitted from New and Nonofficial Remedies all antipneumococcic serums which represented organisms other than Type I. (Journal A. M. A., April 5, 1924, p. 1138).

J. Bernard King's Radium Fraud.—For some years one J. Bernard King has been defrauding the public by selling earth as a cure for all the ills of the flesh, under the claim that it was a radium salt. A quietus has been put on King's scheme through the issuance of a fraud order, debarring him from the use of the United States mails, not only under his own name, but under the name of the "International Radium Company" and "Radium Products Company." King called his product "Ray-Cura" and claimed that it consisted of radium sulphate found "in the mountains of North America." Ray-Cura was marketed in cloth covered pads, which were composed of little sacks of a light colored substance of the consistency of flour. The alleged curative power existed in what Mr. King called radium emanations from this substance. The government investigation brought out that the contents of a pad which sold for fifteen dollars, cost less than six cents. The product was found not even to be radioactive and gave forth no radium emanation. (Journal A. M. A., April 12, 1924, p. 1215).

The Pharmacology of Carbon Tetrachlorid.—The most recent claimant for recognition as a means of removing hookworms is carbon tetrachlorid. The moderate cost of this chemical has enhanced its popularity. As the product appears in commerce in a variety of forms for use for different purposes, the A. M. A. Chemical Laboratory studied the quality of the market supply and elaborated standards that might serve to identify products suitable for medicinal purposes. As a result of this study, the Council on Pharmacy and Chemistry adopted standards for carbon tetrachlorid medicinal and listed the brands that complied with these standards. The remedy is comparatively safe, though serious symptoms and even death have been reported from its use, especially in patients addicted to the use of alcohol. Pharmacologic investigation has shown that the substance is relatively nontoxic because it is not readily absorbed from the intestinal canal. Severe intoxication results if the drug is introduced into the tissues directly through the circulation, as by inhalation, or if its absorption is favored by the presence of fats or of alcohol in the stomach and intestines. Hence, alcohol and fats—even milk, perhaps—are to be avoided when carbon tetrachlorid is administered. (Journal A. M. A., April 19, 1924, p. 1268).

Parathyroid Gland Therapy.—The administration of parathyroid gland has been reported of value in the treatment of a number of cases of tetany following the operative removal, or the injury of the parathyroid gland. It has prevented the attacks of tetany and of infantile tetany and seemed at times to have prolonged life, or to have saved it, while the injured glands regained their functions. It has been stated to be of value in some cases of gastric tetany, although in other cases the results were negative. Parathyroid gland has been used by some one or another at some time (and claimed to be of value) for conditions such as varicose ulcers, gastric, duodenal and cervical ulcers, tuberculosis, sinus of the hip, paralysis agitans, eclampsia, etc., but that such disorders are regularly and favorably affected by parathyroid gland administration is a conclusion unsupported by controlled clinical evidence. (Journal A. M. A., April 19, 1924, p. 1286).

Tolysin Omitted from N. N. R.—Tolysin is the proprietary name under which the Calco Chemical Company markets its brand of neocinchophen. The Council on Pharmacy and Chemistry agreed to recognize this proprietary name, first, because the Calco Chemical Company promised to use novatophan (under which name the drug was introduced) or neocinchophen (the New and Nonofficial Remedies' name) as a synonym, thus avoiding, in a measure, confusion concerning the identity of the substance on the part of physicians, and second, because at that time, the firm was the only manufacturer of neocinchophen in the United States. Before Tolysin was accepted the Council required the discontinuance of the claim that the drug is free from cardiac depressant and renal-irritant action, except when limited amounts are used. Despite this requirement, advertising recently issued for Tolysin implies that it is free from toxicity. Further, the Calco Chemical Company determined to break its agreement to use neocinchophen or novatophan as a synonym. The Council has omitted Tolysin from New and Nonofficial Remedies because (1) it is marketed with unwarranted therapeutic claims, and (2) by the omission of the established synonym, neocinchophen (or novatophan), the physician is likely not to appreciate the character of the drug and its relation to cinchophen. (Journal A. M. A., April 26, 1924, p. 1381).

Book Announcements

Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association for 1923. Cloth. Price, postpaid, $1.00. Pp. 72. Chicago: American Medical Association, 1923.

This volume contains the unabridged Council reports that have been adopted and authorized for publication during 1923. Some of the reports, due to their technicality, have only been abstracted in *The Journal;* others have been published in entirety, and still others have never been published elsewhere.

For one who wishes to be cognizant not only of what the Council has done, but why it has done it, the book will be very valuable, for it supplements New and Nonofficial Remedies with a more detailed account of the activities of the Council during 1923. New and Nonofficial Remedies records those proprietary remedies which have been accepted; Council Reports treats those which have been found unacceptable, and those which give promise of becoming valuable.

New and Nonofficial Remedies, 1924, Containing description of Articles Which Stand Accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1924. Cloth. Price, postpaid, $1.50. Pp. 422+XXXIX. Chicago: American Medical Association, 535 North Dearborn Street.

Every physician is continually bombarded with literature, scientific and otherwise, concerning the newer remedies. He has neither the time nor the opportunity to investigate all even of the more promising preparations, and obviously he cannot try them upon his patients without investigation. He must know the composition of the article, must know that the claims under which it is marketed are true; in other words, he must have some critical statement of the actions, uses and dosage as well as of the chemical and physical nature of the product.

This official publication through which the Council on Pharmacy and Chemistry annually presents to the American medical profession disinterested, critical information about the proprietary preparations which the Council deems worthy of recognition has been extensively revised. In addition to the description of these proprietary preparations, the book treats those nonofficial remedies which, in the opinion of the Council, are worthy of consideration.

As the book is designed for ready reference, each preparation is classified, and each classification is preceded by a general and critical discussion of that group. These articles are written by those who may speak with authority on the separate subjects, and are a compilation of the best accepted opinions of today. It should be of great value to the physician who prescribes drugs and wishes information about the many new remedies in regard to which he is constantly receiving literature.

Differential Diagnosis. Presented Through An Analysis of 317 Cases. By RICHARD C. CABOT, M. D., Professor of Medicine and Professor of Social Ethics at Harvard University. Volume II, Third Edition, Revised. Philadelphia and London. W. B. Saunders Company. 1924. Octavo of 709 pages with 254 illustrations. Cloth, $9.00 net.

The Human Testis. Its Gross Anatomy, Histology, Physiology, Pathology, with Particular Reference to its Endocrinology, Aberrations of Function and Correlation to other Endocrines, as well as Treatment of Diseases of the Testes and Studies in Testicular Transplantation and the Effects of the Testicular Secretions on the Organism. By MAX THOREK, M. D., Surgeon-in-Chief, American Hospital; Consulting Surgeon, Cook County Hospital, Chicago; President, International Congress of Comparative Pathology, Rome, Italy, 1924; etc. Philadelphia and London. J. B. Lippincott Company. Octavo of 548 pages with 308 illustrations. Cloth. Price, $8.00.

Dislocations and Joint-Fractures. By FREDERIC J. COTTON, M. D., F. A. C. S., Visiting Surgeon to the Boston City Hospital; Associate in Surgery, Harvard Medical School, etc. Second Edition, Reset. Philadelphia and London. W. B. Saunders Company. 1924. Octavo of 745 pages, with 1,393 illustrations from drawings by the author. Cloth. $10.00 net.

The Anatomy of the Nervous System, from the Standpoint of Development and Function. By STEPHEN WALTER RANSON, M. D., Ph.D., Professor of Anatomy, Northwestern University Medical School, Chicago. Second Edition, Revised. Philadelphia and London. W. B. Saunders Company. 1923. Octavo of 421 pages with 284 illustrations, some of them in colors. Cloth, $6.50 net.

Pathological Technique. A Practical Manual for Workers in Pathological Histology and Bacteriology, including Directions for the Performance of Autopsies and for Clinical Diagnosis by Laboratory Methods. By FRANK B. MALLORY, M. D., Pathologist to the Boston City Hospital, and JAMES HOMER WRIGHT, M. D., S. D., Pathologist to Massachusetts General Hospital and Assistant Professor of Pathology, Harvard Medical School. Eighth Edition, Revised and Enlarged. Philadelphia and London. W. B. Saunders Company. 1924. Octavo of 666 pages with 180 illustrations. Cloth, $6.50 net.

Virginia Medical Monthly

FOUNDED BY LANDON B. EDWARDS, M. D., APRIL, 1874.
OWNED BY THE MEDICAL SOCIETY OF VIRGINIA.
PUBLISHED BY THE PUBLISHING COMMITTEE.

A. G. BROWN, Jr., M. D., Chairman, Richmond, Va.

B. R. TUCKER, M. D., Richmond, Va.
P. W. HOWLE, M. D., Richmond, Va.
E. L. KENDIG, M. D., Victoria, Va.
A. L. GRAY, M. D., Richmond, Va.

ALEX. G. BROWN, Jr., M. D., Editor.

AGNES V. EDWARDS, Business Manager and Secretary-Treasurer.

All correspondence regarding editorial matters, articles, advertisements, subscription rates, etc., should be addressed to the Journal.

All advertisements are received subject to the approval of the Council on Pharmacy and Chemistry of the American Medical Association.

Subscription Price: $2.00 per annum in advance.
Single Copies 20c.

Vol. 51. JUNE, 1924 No. 3

Editorial

Some Approved "Dental" Work.

The Richmond Academy of Medicine is to be congratulated upon its successful efforts in putting "teeth" into the State Medical Practice Act which will prevent illegal and unlicensed practice of medicine in the city of Richmond in the future.

This action was the result of the Academy's endorsement of an Ordinance proposed by city councilman, Dr. L. T. Price, requiring that, after June 1, of this year, every one desiring to practice the Healing Art in the city of Richmond, except those now exempted by the State law, shall exhibit to the Commissioner of Revenue proper evidence that he is qualified for the practice of medicine by having previously passed an examination before the Virginia State Board of Medical Examiners.

Heretofore, any one, even an hobo, could get a license in the city of Richmond, if the applicant swore that he was going to practice the Healing Art, and paid the initial fee of ten dollars, plus a certain percentage based upon his net income for the year. This, of course, was in opposition to the State Medical Law, but the Commissioner contended that he was required to act only under the regulations of the City Finance Committee, and was not called upon to demand any specified qualifications from any applicant.

This state of affairs has been long recognized as being as reprehensible, as it was prejudicial to the professional and health interests of the city, and that, by its continuance, enforcement of the state statutes was made additionally difficult, but, owing to the ignorance of the people in such matters and to the constant advertising of illegal practitioners, it was apparently impossible to prevent this illegal practice; consequently, it is now believed that the work of the Academy of Medicine in Richmond, in finally securing the passage of the above Ordinance, after more than five months of strenuous labor and education, will be of great benefit to the city and the public, and of vital constructive assistance to the people of the state at large, and that the good work accomplished, will be followed by other cities in the state, and in this way, the interests of the people and of the profession will be better protected in the future against uneducated and unlicensed practitioners.

The city of Norfolk two years ago passed a somewhat similar Ordinance, and it has been effective in safe-guarding the best interests of that city. The Dental profession in this state, however, has had more vision than the Medical, for in formulating its practice act, it required that each dentist should present annually evidence of proper qualifications before licensure anywhere, and this was rendered doubly safe by the requirement in the law that each dentist should pay each year a small license fee to the state.

Primarily, it might be argued that this is not the duty of the physicians at all, but of the public, and that we should allow the people if they desire it, to legislate accordingly, and to have such methods of practice as they may please, but this is not, in our opinion, the true conception of the high standards of professional thought or endeavor. Physicians in part must blame themselves for the lack of interest manifested in professional matters by the public at large, for the profession has been archaic in many of its methods, and too detached and too much "set-apart," to correctly approach or interest the people. They should remember, however, that they are in a position to best interpret the things they see and translate into effective action the wishes and desires of their patients. This, indeed, is a moral obligation, and it is as urgent and as much the duty of the honest physician to protect the public against the menace of quacks and humbugs to health and civilization, as it is to fulfill the active duties of his profession in healing the sick and suffering, and pro-

tecting them against the menace of epidemics.

The physician must no longer be all-sufficient and reticent, as regards knowledge that might be of benefit to the laity, for if he condones quackery by failing to give information he possesses concerning its fallacies, he is guilty of a breach of trust to the people, as well as to his profession. No one is better or more generally informed on all such subjects than the physician, and the public will continue to look to the regular and established profession for guidance and assistance. No blatant self-advertising is required, or desired, but the public is entitled to dependable health information from responsible and authoritative sources.

The instruction must be personal, and the individual must be made interested, in order to become co-operative; in other words, if the ideals of Medicine, and the standards of Medical education are to be upheld, the public must be educated.

The Medical Society of Virginia at it last meeting, believing that this was necessary, organized the Virginia League for Health Education and Medical Progress. The plan is based upon the mutual co-operation of Laymen with Physicians and allied professions; its object is two-fold, to aid and encourage the promotion of personal and public Health Education, and to teach the value and achievements of Scientific Medicine. In other words, the people, for whose protection the medical profession has always worked, will be given a dignified statement of the aims and results of regular medicine, and they, in the light of this information and its revelations, will be called upon to fight this battle of altruism. Physicians are asking only for certain necessary and basic educational requirements for the practice of medicine, and possessing which, a man can practice, as he worships God, "according to the dictates of his own conscience."

It is the public that should be protected, and it should do its part in this important work of eliminating irregular practices and unscientific methods.

J. A. H.

WHAT ABOUT THE MENTALLY CRIPPLED?

In the Virginia State Penitentiary more than 25 per cent of the inmates are feebleminded and a number of others are mentally disturbed. Fortunately, however, these latter cases are rapidly recognized by the Advisory Board for Criminal Hygiene and transferred to proper institutions for treatment. The feebleminded cases are recognized but there is no place to which to transfer them. In reformatories and prisons throughout the country the percentage of those mentally subnormal runs from 25 to 50 per cent. Subnormal mentality runs high also among those who are sent to juvenile courts, prostitutes, almshouse inmates, orphan asylum children and problem children in general.

It has been estimated that about 3 per cent of school children are mentally subnormal and in the city of Richmond the classes for backward and defective children in the public schools contain nearly four hundred children. Dr. James K. Hall of Richmond has recently made the following statement: "Statistics prepared under the supervision of the Surgeon-General of the United States Army will tell you that twenty-one out of every one thousand of your young men drafted into the army during the late great war were feebleminded." As a result 69,000 men were rejected because of mental disorder of various kinds. There are said to be between 4,000 and 6,000 definitely feebleminded children in the State of Virginia and some 4,000 or more insane are supported by the State in its asylums.

If you can spare the time, read the above statement over again and try to contemplate the great loss in manhood, womanhood and money to the nation and the state these conservative figures imply, to say nothing of the shadow of sorrow which follows in their train. We are struggling and striving to do the best we can to maintain and take care of these unfortunates after they become a burden on society. What are we doing to prevent their becoming this burden? The answer is, practically nothing. Why is so little done? The answer is that the public is not educated to the value of mental hygiene and hence not interested. Thousands of dollars are spent on the physically crippled child to every cent spent on the mentally crippled child and it is a true statement to say that the latter is as helpable as the former and that the prospect of preventing mental cripples is as good as that of preventing physical cripples!

In some cities the National Committee for Mental Hygiene is establishing clinics to diagnose, study and direct the defective child and

in Richmond a child's diagnostic clinic with a department for psychiatric and delinquent children is to be established, provided sufficient funds can be raised. To raise these funds the City of Richmond, the Medical College of Virginia, the McGuire Newton Foundation, the City Health Department, the State Health Department, the Juvenile Court, the State Board of Public Welfare, the city schools and others are co-operating. It will cost about $24,000 a year to maintain this clinic and it is expected to raise about half this sum for two years from national associations. A full time paid pediatrician and a full time paid psychiatrist will be in charge and the rest of the paid and voluntary staff will be large and adequate. As this clinic will serve both the city and the state it is hoped that the physicians of the state will lend it their unstinted moral support.

B. R. T.

Public Health Summer Schools.

Surgeon-General H. S. Cumming, calls attention again to the new plan, suggested by the United States Public Health Service, for the purpose of combating preventable diseases. The letter and announcement follow:

In one capacity or another, directly or indirectly, you are engaged in combating preventable diseases which will cost the people of the United States this year over 3,000 millions of dollars, cause inestimable suffering and result in approximately 500,000 deaths.

Certain phases of preventive medicine are developing slowly, with consequent loss of health and life, primarily because adequately trained men and women are not available. In other fields of public health work, the personnel has increased so rapidly that there are many at work who have not had the opportunity for training which they desire.

To meet in some measure this emergency, Public Health Summer Schools will be conducted this year (at the suggestion of the United States Public Health Service) by Columbia University, the University of California, the University of Iowa and the University of Michigan. Here all those now engaged in public health work and all planning to have a part in preventive medicine may get intensive, systematic training under leading specialists.

The announcements of the Public Health Summer Schools are now ready and may be obtained upon application. Requests should be sent directly to the universities.

Training for Practicing Physicians in Preventive Medicine and Public Health

An increasing proportion of the 145,000 physicians and surgeons of the United States are engaging in various forms of preventive medicine and public health work. Pediatricians are beginning systematically to provide for the health of babies for a specified period of time after birth. An increasing number of private practitioners are giving periodic health examinations. Approximately 12,000 to 20,000 physicians are engaged on a part time or full time basis in special clinics and general dispensaries. Others are becoming employed by tuberculosis associations and various private health agencies. Still others are joining the staffs of county, municipal, state and federal health organizations.

For most of these various types of work, the practicing physician finds himself in need of additional training. Some have sufficient initiative and resourcefulness to obtain this training in the course of their new work. A considerable majority, however, may welcome a chance to obtain up-to-date instruction in a more systematic way. They will find in the public health summer schools of 1924 a unique opportunity for such training. Innumerable combinations of courses are possible. Every physician who has already entered or is planning to enter some phase of preventive medicine or of public health work in connection with his private practice or who intends to become associated with some health agency will be able, at any one of the public health summer schools, to find the type of training he needs to enable him to develop greater efficiency in his new work.

Advanced Degrees

During the next decade, hundreds and thousands of men and women will enter various kinds of public health work. A few will come from schools of public health with the M. D., D. P. H., or other special public health degree. A much larger number, probably, will enter public health work directly from private medical practice, from private nursing and from other occupations allied to public health work, without the advantages of special

training for which an advanced public health degree stands.

The public health summer school has been established for such persons, also for physicians and others who have already entered the field of public health—sometimes rather suddenly—without having had the opportunity of special academic training. Those of either group may select at a conveniently located summer school two or more courses which will prove to have immediate value in public health work or in any form of preventive medicine, irrespective of the academic credit to be gained. Many, perhaps, will wish to consult at once the dean of the graduate school of the university at which they decide to do their work, so that a program of courses may be arranged which will lead to the C. P. H., A. M., M. S., Ph.D., Sc.D., D. P. H. or other advanced degree.

Most of the courses given by the University of California and the University of Michigan may be counted towards an advanced degree. Nearly all the courses offered by Columbia University and the University of Iowa are regularly scheduled for credit; those not specifically so indicated may be taken for credit by arrangement with the appropriate department or the dean of the college concerned.

PUBLIC HEALTH SUMMER SCHOOLS, 1924, CONDUCTED WITH THE CO-OPERATION OF THE UNITED STATES PUBLIC HEALTH SERVICE

Columbia Universiy .....New York City
July 7 to August 15

John J. Coss, A. M., Director of the Summer Session. Haven Emerson, M. D., in charge of Public Health Courses.

University of California.....Berkeley
June 23 to August 2

John P. Buwalda, Ph.D., Dean of the Summer Sessions. John N. Force, M. D., in charge of Public Health Courses.

University of Iowa.....Iowa City
June 9 to July 18

C. H. Weller, Ph.D., Director of the Summer Session. Don M. Griswold, M. D., Director of the Public Health Summer School.

University of Michigan.....Ann Arbor
June 23 to August 2*

E. H. Kraus, Ph.D., Dean of the Summer Session. John Sundwall, M. D., Ph.D., in charge of Public Health Courses.

*Certain courses at the University of Michigan will continue two additional weeks.

Requests for announcements should be addressed to the Deans of the Summer Sessions.

News Notes

Medical College of Virginia Finals.

Commencement exercises of the Medical College of Virginia were held in Richmond, May 31 to June 3, inclusive, an interesting program being enjoyed by the alumni who attended. Exercises started on the evening of May 31, with "stunt" night, at which time also letters were presented a number of the members of the baseball and tennis teams. The baccalaureate sermon was delivered by Rev. George E. Booker, D. D., at Monument Methodist Church, on Sunday, June 1. The alumni began registering on Monday and the board of visitors held their annual meeting that morning. In the afternoon a baseball game was staged between the alumni and the graduating classes, and the reunion dinner was held that evening at Commonwealth Club. Dr. S. C. Mitchell, of University of Richmond, formerly president of the Medical College of Virginia, was the principal speaker on this occasion, and Dr. W. L. Peple, Richmond, toastmaster. At this dinner plans were discussed for the enlargement and improvement of the College and its hospitals.

The alumni held a business meeting on Tuesday morning, at which time papers were read by several members. At the election of officers of the Alumni Society, Dr. Manfred Call, Richmond, was re-elected president; Dr. Guy Harrison, Richmond, first vice-president; Miss Maud Lambert, Roanoke, second vice-president; Dr. Everett E. Watson, Salem, third vice-president; Miss Nora Spencer Hamner, Richmond, fourth vice-president; Dr. F. H. Beadles, Richmond, treasurer; and Mr. L. C. Bird, Richmond, holds over as secretary until appointment is made by the executive committee. Following this meeting, luncheon was served at the College.

There was an unusually large attendance of the class of 1914. They held a reunion dinner at Murphy's Hotel on Tuesday evening and decided to make their reunion an annual affair. For this purpose they formed a permanent organization with Dr. Howard Urbach, Richmond, as president, Dr. Henry Stern, Richmond, vice-president, and Dr. G. Bentley Byrd, Norfolk, secretary. This class pledged

itself to support the building and endowment campaign which the college proposes to put on in the near future.

At the final exercises on Tuesday evening, Rear Admiral Cary T. Grayson, Washington, D. C., was the principal speaker. The exercises closed with a dance in honor of the graduating classes at Commonwealth Club. There were seventy-four graduates in medicine, thirty-seven in dentistry, twenty-one in pharmacy and seven in nursing, representing fourteen states, District of Columbia and Porto Rico. The following are hospital appointments for the graduates in medicine, as announced on the last evening:

Memorial Hospital, Richmond—Drs. Robert W. Bess, Hinton, W. Va., Boyd F. Brown and Aaron Seldes, Richmond, Ernest C. Shull, Winchester, Clive A. Thompson, Sparta, N. C., Coy T. Upchurch, Apex, N. C., and G. F. Hale (dental interne).

Johnston-Willis Hospital, Richmond—Drs. Donald S. Daniel, Weldon, N. C., and Samuel E. Hughes, Jr., Danville.

Retreat for the Sick, Richmond—Drs. Doris C. Boatright, Gate City, and John E. Dougherty, Elkins, W. Va.

St. Elizabeth's Hospital, Richmond—Drs. Wm. A. McGee and James M. Whitfield, Jr., Richmond.

St. Luke's Hospital, Richmond—Drs. Henry A. Hornthal, Norfolk, and Clay W. Evatt, Baltimore, Md.

Stuart Circle Hospital, Richmond—Drs. John R. Chitwood, Sylvatus, and Harry H. Ware, Jr., Dunnsville.

Tucker Sanatorium, Richmond—Dr. Giles S. Terry, News Ferry.

George Ben Johnston Memorial Hospital, Abingdon, Va.—Dr. Wm. H. McCarty, Chatham Hill.

Cumberland Hospital, Brooklyn, N. Y.—Dr. Rudolph Goldberg and Leo L. Klein, of New York City, and George Schoenholtz Bronx, N. Y.

Holy Family Hospital, Brooklyn, N. Y.—Dr. W. E. Geiger and Harold Neifeld, Brooklyn, N. Y.

Chesapeake & Ohio Hospital, Clifton Forge, Va.—Dr. Albert C. Van Reenan, Onoto., W. Va.

Watts Hospital, Durham, N. C.—Dr. Francis N. Bowles, Chester.

Pittman Hospital, Fayetteville, N. C.—Dr. Ryland A. Blakey, Richmond.

Harrisburg General Hospital, Harrisburg, Pa.—Dr. Ward E. Newcomer, McClellandtown, Pa.

Hazard Hospital, Hazard, Ky.—Dr. David W. Kelly, Jr., Culpeper.

State Hospital, Hazelton, Pa.—Drs. James L. Blanton, Tobaccoville, and Henry T. Garriss, Margarettsville, N. C.

St. Mary's Hospital, Hoboken, N. J.—Drs. Luther R. Lambert, Welch, W. Va., and Clark Lemley, Star City, W. Va.

Chesapeake & Ohio Hospital, Huntington, W. Va.—Dr. William C. Kappes, Richmond.

Jersey City Hospital, Jersey City, N. J.—Dr. Alvah W. Bickner, Jr., Rutherford, N. J.

St. Francis Hospital, Jersey City, N. J.—Drs. Geo. T. Colvard, Jefferson, N. C., and William F. Matthews, New Church.

Virginia Baptist Hospital, Lynchburg, Va.—Dr. Wm. E. Smith, Farmville.

Grace Hospital, New Haven, Conn.—Dr. Chester E. Haberlin, Bridgeport, Conn.

Elizabeth Buxton Hospital, Newport News, Va.—Dr. Alvin D. Lamberth, New Upton.

Gouverneur Hospital, New York, N. Y.—Drs. John A. G. Davis, Jr., Greenwood, and Thomas B. Washington, Woodford.

Lincoln Hospital, New York, N. Y.—Dr. Nathan B. Feinberg, New York, N. Y.

Metropolitan Hospital, New York, N. Y.—Dr. Lula W. Garst, Richmond.

Ancon Hospital, Panama, C. Z. — Dr. George W. Black, Mt. Holly, N. C.

St. Thomas Hosptial, Panama City, C. Z.—Dr. Eduardo G. Morales, Caguas, Porto Rico.

Central State Hospital, Petersburg, Va.—Dr. Allen B. Sloan, Charlotte, N. C.

Jefferson Hospital, Roanoke, Va.—Dr. John M. Bishop, Ivanhoe, Va.

Lewis-Gale Hospital, Roanoke, Va.—Dr. J. Albert Avrack, Richmond.

Roanoke Hospital, Roanoke, Va.—Dr. John M. Bailey, Richmond.

Grassland's Hospital, Valhalla, N. Y.—Dr. Randolph McCutcheon, Hominy Falls, W. Va.

St. Elizabeth's Hospital, Washington, D. C. Dr. Lucy S. Hill, Locust Dale.

James Walker Memorial Hospital, Wilmington, N. C.—Drs. John W. Straughan, Siler City, N. C., and William N. Williams, Pine Bluff, Ark.

Memorial Hospital, Worcester, Mass.—Dr. Rachel F. Weems, Ashland.

Fordham Hospital, New York, N. Y.—Dr. Charles Phillips, Brooklyn, N. Y.

City Home Hospital, Richmond, Va.—Undergraduates R. R. Goad, E. H. Hearst and A. G. Martin.

Hygeia Hospital, Richmond, Va.—Undergraduates Waylon Blue and P. H. Wiseman.

Sheltering Arms Hospital, Richmond, Va.—Undergraduates H. C. Alexander and A. L. Carson, Jr.

Soldiers' Home Hospital, Richmond, Va.—Undergraduate G. W. Booth.

The other graduates in medicine are:

Dr. Ruth G. Aleman, New Orleans, La.
Dr. Timothy S. Buckley, Richmond.
Dr. Wesley G. Byerly, Cooleemee, N. C.
Dr. Carl J. Carter, Fairmont, W. Va.
Dr. David J. Dolen, New York, N. Y.
Dr. Joseph S. Feraca, New York, N. Y.
Dr. Samuel J. Ferguson, Wayne, W. Va.
Dr. Robert B. Groves, Lowell, N. C.
Dr. Charles E. Holderby, Buffalo Lithia Springs, Va.
Dr. John R. Howard, Coats, N. C.
Dr. Benj. E. Hunt, Jeffs, Va.
Dr. Thos. F. McDermott, New York, N. Y.
Dr. Roy L. Noblin, Nelson, Va.
Dr. Williard S. Parson, Wilkinsburg, Pa.
Dr. Ulvert O. Sanders, Oceana, W. Va.
Dr. David B. Stuart, Cumberland, Va.
Dr. Adrian X. Urbanski, Perth Amboy, N. J.
Dr. Francis W. M. White, Windsor, N. C.
Dr Pauline Williams, Richmond.

Correspondence Course for Mothers.

Feeling that a wide distribution of the rudiments of knowledge in regard to the care of the pregnant woman and of her offspring might reduce the frightful mortality among the child bearing woman and her child, the State Board of Health of Virginia has distributed a set of pamphlets that is called a "Correspondence Course for Mothers."

Part I consists of six lessons dealing with the pregnant woman, her delivery and her lying-in period, Part II teaches the care of the infant in six lessons.

These pamphlets are distributed one at a time to a group of women who are pregnant and have shown a sufficient interest to enroll themselves into a group for instruction. After the lesson has been studied and the questions upon the back of the leaflet have been answered and sent in, the next leaflet is sent and so on until the course has been completed.

Mrs. J. W. Farris, a trained nurse, who has charge of this correspondence course, answers all of the questions that the students ask and keeps the ball rolling.

There are, we know, hundreds of women of our State who gain their information in regard to pregnancy from their neighbors who are often as poorly informed as the seeker after information. Even those mothers who are delivered by doctors are poorly instructed oftentimes because the doctor sees them only at delivery, unless they develop something pathological. The doctors do the best they can but it is asking a great deal of the busy man to have him give detailed instruction in regard to all of the thousand and one things that a pregnant woman should know.

These lessons are very conservative. The information is of a very general character. The case is urged to take her troubles to the doctor.

A set of lessons will be sent to each Virginia doctor from the Board of Health very shortly. We hope you will take the trouble to read them and recommend them to your pregnant women.

GREER BAUGHMAN, M. D.

Another Hospital for Crippled Children Dedicated.

The fifth in the chain of Shriners' hospitals for crippled children was dedicated in St. Louis, June 1. The other four in operation are in Shreveport, La., San Francisco, Portland, Ore., and the Twin Cities of Minneapolis and St. Paul, Minn., in addition to which there is the "mobile unit" in the Hawaiian Islands, which has given treatment to a large number of children in Honolulu. The Shrine proposes to build and maintain at least twenty of these hospitals, placing one in reach of every crippled child in this country, regardless of creed and race; the only restrictions are that the child must be suffering from some ailment coming in the domain of orthopedic surgery, the case must offer reasonable hope of cure, and the parents must be financially unable to pay the cost of treatment in some other hospital. Each Shriner is assessed $2 a year for this hospital fund.

It is announced that hospitals are also in course of construction at Springfield, Mass.,

and Montreal, Canada, and that sites have been purchased for hospitals in Philadelphia and Chicago.

Are You Planning to Attend the Staunton Meeting?

If not, you should read the interesting historical sketch of Staunton and the celebrated Valley of Virginia, by Dr. Charles Minor Blackford, which appears under the "Miscellaneous Department" in this issue of the Monthly, and you will feel impelled to visit this interesting section of the State. What better time than the Fall, when the country is at its loveliest to take an automobile trip, and make one of your stops at Staunton! An interesting program is being arranged and the Augusta County doctors are working hard to make this a "big" meeting. You can help by lending your presence. The "Stonewall Jackson" will be headquarters for the meeting. Make your reservations as soon as possible.

A. M. A. Meeting.

As we go to press, doctors from all over the country are gathering in Chicago, to attend the meeting of the American Medical Association. Dr. Ray Lyman Wilbur, Stanford University, Calif., is president, Dr. William A. Pusey, Chicago, president-elect, and Dr. Olin West, Chicago, secretary. The *A. M. A. Bulletin* states that this is really the seventy-seventh year of the Association, but will be only the seventy-fifth meeting, owing to the fact that two annual sessions were missed during the Civil War. It is expected that fully 10,000 fellows will attend.

A feature of unusual interest in connection with this meeting was the banquet in honor of Dr. George Henry Simmons on the evening of the 9th, at which time was also held the ceremony of presentation of his portrait. Dr. Simmons, for twenty-five years editor of the *Journal of the American Medical Association*, requested that he be retired in this his seventy-third year, and the banquet was given that the medical profession, educators, scientists, and other friends, might express appreciation to him for the outstanding service he has rendered to medical literature, medical education, medical organization, science and the general public welfare.

Dr. and Mrs. Beverley R. Tucker

Have returned to their home in Richmond, after a short visit to Philadelphia.

Medical Intelligence Bureau Organized in Connection With Hot Springs National Park, Ark.

Under the auspices of the Garland County Medical Society, Hot Springs, Ark., a Medical Intelligence Bureau has been organized for the purpose of placing before the medical profession of America a clearer and more exact knowledge of the therapeutic values of the waters of the Hot Springs National Park, of Arkansas. Members of the profession are invited to correspond with the Bureau relative to cases which have not responded to treatment at home, and as to the advisability of sending them to Hot Springs for a course of treatment. Colonel L. M. Maus, retired, Medical Corps, U. S. Army, has been appointed Intelligence Officer and placed in charge of the Bureau.

This is the only health resort in America owned and controlled by the United States Government. Several years ago, the Interior Department constructed a public bath house for the poor of the country, where large numbers, regardless of race, color or sex, are treated gratuitously during all seasons of the year, by medical officers detailed from the Public Health Service. The Hot Springs of Arkansas were set aside by Congress in 1832 as a "National Sanitorium" for the people of America for all time. Frequent physiological and chemical examinations have been made of these waters by government experts, and, with few exceptions, they have been reported to be as strongly radio-active as any European Springs.

The Southside Virginia Medical Society

Will hold its regular quarterly meeting on Tuesday, June 17th, at Victoria. Dr. George H. Reese, Petersburg, and Dr. R. L. Raiford, are president and secretary, respectively. Dr. Thomas G. Hardy, Farmville, councilor of the Medical Society of Virginia from the fourth congressional district, has called a meeting of delegates from the county societies in this district, to convene at this meeting, to nominate his successor as a member of the council. Dr. Hardy's term of office expires this Fall.

Resident Physician at Pine Camp, Richmond.

Dr. William P. Bittinger, who since his graduation from Medical College of Virginia, last year, has been an interne at Johnston-Willis Sanatorium, this city, has accepted the position of resident interne at Pine Camp,

Richmond, Va., and will enter upon his duties on July 1st. He is a brother of Dr. Samuel M. Bittinger, assistant superintendent of the North Carolina Sanatorium for the Treatment of Tuberculosis, Sanatorium, N. C.

C. L. Plunkett, of Medical College of Virginia, will be undergraduate interne at Pine Camp, this year.

Acting Health Officer of Richmond.

Dr. B. B. Bagby, health officer of Henrico County, for the past year has been appointed by Dr. E. C. Levy as acting health officer of Richmond and has entered upon his duties here. Until September 1st he is filling the vacancy caused by the resignation of Dr. C. C. Hudson, who on May 1st accepted the position as health officer of Greensboro and Guilford County, N. C. Prior to taking charge of the health unit of Henrico County, Dr. Bagby was a practicing physician in West Point, Va., and was widely known also as a student of preventive medicine.

Married.

Dr. Hunter Holmes McGuire and Miss Catharine Skelton Bemiss, both of Richmond, May 24.

Dr. Sidney Trattner and Miss Leah Whitlock Binswanger, both of Richmond, May 5.

Dr. James M. Fadeley, Washington, D. C., and Miss Marian Parker, Berryville, Va., in New York City, May 2. Dr. Fadeley is a son of Dr. and Mrs. G. B. Fadeley of Falls Church, Va.

The Graduate Nurses' Association of Virginia

Met in Roanoke, Va., May 27-29, under the presidency of Miss L. L. Odom, of Sarah Leigh Hospital, Norfolk. There was a good attendance and the program was most interesting. It was announced that $2,300 had already been received from presentation of the nurses' pageant, "Signal Fires," and that full reports had not yet been received from all the cities. The nurses have also raised more than $5,000 on the foundation fund with which they propose to establish a chair of nursing at the University of Virginia.

Election of officers was as follows: President, Miss Agnes Randolph, of the State Board of Health, Richmond; vice-presidents, Miss L. L. Odom, Norfolk; Miss Hattie V. Norris, Roanoke; and Miss Evelyn Hill, Harrisonburg; secretary, Miss Alice Dugger, Red Cross Supervisor of the State Board of Health, Richmond; treasurer, Miss Florence Bishop, Staunton; new member of the board of directors, Miss Ethel Smith, of Craigsville.

Dr. J. C. Cutler,

Newport News, Va., was a recent visitor in this city, having come here on business.

Dr. M. B. Linkous

Announces his removal from Cambria, Va., to Blacksburg, Va.

Dr. R. A. Bennett,

After practicing at Huddleston, Va., for a number of years, located in Bedford, Va., the first of June.

Dr. S. C. Draper,

Who recently accepted a position with the Relief and Pension Department of the Norfolk and Western Railway Company, at Norfolk, Va., has been transferred to Bluefield, W. Va.

Dr. Paul C. Colonna,

Formerly of Virginia, but who is now practicing in New York City, will sail June 21st, by the Saxonia, for a ten weeks' trip to the Orthopedic clinics of England, France and Italy.

Dr. James A. Wilkins,

Of Lynchburg, Va., has located at 550 Monroe Building, Norfolk, Va., for the practice of internal medicine. Dr. Wilkins graduated from the University of Virginia in March, 1919, and since this time he has served internships in the University of Virginia Hospital and Lenox Hill Hospital, New York City. For the past three years Dr. Wilkins has been on the staff of the Mayo Clinic in Rochester, Minnesota, as a Fellow in Medicine.

Dr. J. Shelton Horsley,

By invitation, gave an address before the Florida State Medical Association, on the ocsion of their annual meeting in Orlando, May 13th, his subject being "Surgery of the Stomach."

Dr. H. Marshall Taylor, an eye, ear, nose and throat specialist of Jacksonville, who graduated from Medical College of Virginia in 1911, was president this year. Dr. Taylor has done much excellent work in the promotion of the propaganda for prevention of esophageal burns by swallowing lye. He has been much interested in this subject and has been instrumental in securing legislation in several states for compelling manufacturers to label concentrated lye as poison.

Dr. William L. Brent,

Of Colonial Beach, Va., is now in Baltimore, Md., where he is specializing in pediatrics. He is visiting physician to Nursery and Child's Hospital, and University Hospital, and pediatrician to the German Orphanage.

Dr. C. D. Hopkins,

Formerly of Rocky Mount, Va., who graduated from Medical College of Virginia last year, after spending several months at Johns Hopkins Hospital, Baltimore, and Flushing Hospital, New York, recently located in Richmond, Va., where he is associated with Dr. W. B. Hopkins, at 421 East Franklin Street, in the practice of diseases of the eye, ear, nose and throat.

Dr. and Mrs. A. L. Tynes,

Staunton, Va. have just returned from Baltimore, where they went to attend the commencement exercises of Goucher College, their daughter being among this year's graduates.

Dr. P. L. Hill, Jr.,

Gaffney, S. C., who has been in this country about a year, plans to return to his work in Korea, in August. He has recently been taking up special work on the subject of gastro-intestinal diseases in Chicago. Dr. Hill, who is an alumnus of the Medical College of Virginia, attended commencement exercises of that school in Richmond, early this month.

Dr. and Mrs. Otis Marshall

And some friends, of Culpeper, Va., last month enjoyed a motor trip through the Valley of Virginia and visited friends in Shepherdstown, W. Va., and Winchester, Va.

Dr. Marshall W. Sinclair,

Formerly of Newport News, Va., but who has recently been connected with Anderson County Hospital, Anderson, S. C., has accepted the position of pathologist with St. Luke's Hospital, Bluefield, W. Va., and expected to enter upon his new duties on June 15th.

Dr. B. P. Seward,

Recently of Surry, Va., has moved to Richmond, and opened offices at 320 West Grace Street, for the practice of medicine. Dr. Seward has many friends in Richmond, having graduated from Medical College of Virginia in 1922, after which he served an internship at Stuart Circle Hospital, this city.

Dr. F. Musgrave Howell,

Lynchburg, Va., has just returned from St. Louis, Mo., where he has been taking post-graduate work in obstetrics and anesthesia at the Barnes Hospital and St. Louis City Hospital. His offices are at 816 Church Street, Lynchburg, instead of on Court Street, as stated in May journal.

The Maryland Cancer Committee,

Through Dr. Joseph Colt Bloodgood, Baltimore, recently issued a bulletin to members of the medical and dental professions, urging upon them the need of injecting the layman with the idea that "correct information in regard to cancer and some other diseases often leads to their prevention, or to a larger probability of a permanent cure." Too much stress cannot be laid on the need of these professions bringing these life-saving facts before the people of this country.

Dr. and Mrs. Albert Siewers

And little daughter, of Syracuse, N. Y., are visiting the former's old home in Richmond. Dr. Siewers, who graduated from Medical College of Virginia in 1918, is now limiting his work to neurology and psychiatry in Syracuse.

Medical Review of Reviews

Announces a change of policy and a new editorial board which began with the March issue. The journal will be an international review of medicine and surgery; the index medicus will be discontinued and abstracts from medical literature will be given in its place. A foreign correspondent will give many interesting items from abroad.

The editorial board is composed of fourteen prominent doctors from this country and abroad. From time to time the various issues will be devoted to special subjects.

Dr. Lewis Holladay

And daughter, of Orange, Va., motored to Hampden-Sidney College, last month to visit Dr. Holladay's sons.

Dr. J. A. McIntyre,

A native of Richmond, Va., and a graduate of Georgetown Medical School, class of 1902, has been detailed as chief of the Insurance Medical Section of the U. S. Veterans' Bureau.

Dr. J. Thomson Booth,

Ashland, Va., was elected surgeon of the Camp of Sons of Confederate Veterans, at their organization meeting held in Ashland, the middle of May.

Dr. George P. Hamner,

Lynchburg, Va., has been elected president of the Piedmont Field and Stream Club, in that place.

Dr. Lawrence T. Price

Was re-elected president of the Richmond Chapter, Virginia Polytechnic Institute Alumni Association, at its annual meeting held the latter part of May.

Dr. and Mrs. W. O. Smith,

Altavista, Va., returned home about the middle of May, from Atlanta, Ga., where they went to attend the Southern Baptist Convention.

Dr. and Mrs. R. C. Whitehead,

Norfolk, Va., recently visited relatives in Amherst, Va.

Dr. Carrington Williams,

Richmond, has been elected a member of the board of directors of the Morris Plan Bank of Richmond, Va.

A Number of Doctors go as Delegates to State Democratic Convention.

The following are names of some of the doctors who were elected delegates to the State Democratic convention in Norfolk this month: Dr. M. C. Oldham, Lancaster; Dr. F. W. Lewis, Morattico; Dr. B. A. Rice, Forest Depot; Dr. W. M. Gibbs, Bellevue; Dr. F. C. Pratt, Fredericksburg; Dr. E. L. Kendig, Victoria; Dr. W. D. Kendig, Kenbridge; Dr. T. W. Dew, Bumpass; Dr. M. B. Linkons, Blacksburg; and Dr. A. J. Hurt, Chester.

Children in the Federal Courts.

All but two States have laws providing for juvenile courts for boys and girls. All but one State have probation systems through which the delinquent child may be given a chance to make good under trained supervision. But our Federal law makes no distinction between adults and children. The youngster who defaces a mail-box, steals a ride on a train across State lines, or in some other way breaks the Federal laws must, according to the law, be dealt with on the same basis as an adult offender. A bill which would establish a probation system in United States courts has been favorably reported in the House of Representatives.

Dr. Hugh H. Young,

Of the Johns Hopkins University Medical School, Baltimore, was elected president of the International Association of Urology, at the meeting of this Association recently held in Rome, Italy.

The West Virginia State Medical Association

Held its annual meeting in Wheeling, W. Va., May 13-15, under the presidency of Dr. Robt. A. Ashworth, of Moundsville. The meeting was largely attended and was in every way one of the most interesting in the history of the Association. Bluefield was tentatively selected as the 1925 place of meeting and the following officers were elected: President, Dr. G. D. Jeffers, Parkersburg; vice-presidents, Dr. W. T. Morris, Wheeling, Dr. C. B. Wylie, Morgantown, and Dr. D. A. MacGregor, Wheeling; treasurer, Dr. Hugh G. Nicholson (re-elected), Charleston. New members of council, Dr. John Folk, Bridgeport, and Dr. W. E. Vest, Huntington. Dr. D. A. MacGregor, Wheeling, was re-elected secretary until a full time secretary can be elected to take over the duties, and suitable headquarters can be selected at Charleston, in accordance with a resolution adopted at this meeting.

The Modern Hospital Publishing Company, Inc.,

Announces a prize essay competition on the subject of "The Interrelationships of Hospital and Community." Three cash prizes of $350, $150 and $100 will be awarded, and there will be such honorable mentions as may be authorized by the committee of awards. The purpose of this competition is to concentrate the thought of hospital, public health, medical and social welfare workers on this timely subject for the purpose of crystallizing opinions and defining future objectives.

The general program for the competition may be obtained from The Modern Hospital Publishing Co., Inc., 22 East Ontario Street, Chicago, Ill.

Dr. and Mrs. John B. Bullard

And small daughter, of Richmond, have just returned from a motor trip to Fayetteville, N. C., where they visited relatives.

Child Labor Abroad.

Eleven foreign countries have at least a fourteen-year age minimum for boys and girls going to work, while the United States has no national minimum, according to the report of the House Judiciary Committee recommending the passage of a child-labor amendment by Congress. Only a few States prohibit night work for both boys and girls under eighteen, but at least fourteen foreign countries do so. China has an eight-hour day for children under seventeen and India a six-hour day for children under fifteen. The United States has no national law on this subject; eleven States per-

mit from nine to eleven hours a day for children under sixteen and one State places no limit at all upon the hours a child may work.

Dr. G. H. Musgrave,

After practicing for some years at Boykins, Va., has given up private work and is now with the State Board of Health as health officer for Northampton County, Virginia, with headquarters at Cape Charles.

Dr. William H. Higgins,

Richmond, was an invited guest at the annual meeting of the South Carolina Medical Association, recently held in Orangeburg, at which place he read a paper on "A Consideration of the Under Active Thyroid."

Theaters Refuse to Page Physicians.

We note from the *Journal of the A. M. A.* that the theaters in a certain city have refused to page physicians attending shows, because some physicians have taken this means of securing free advertising for themselves. In the future, physicians in that city will have to be assigned a certain number, by the secretary of the local medical society, and that number will be flashed on the screen when the physician is wanted.

Dr. and Mrs. A. G. Vaden,

Of Cheriton, Va., recently visted Mrs. Vaden's old home at Saluda, Va.

Dr. Leathers Resigns.

Dr. W. S. Leathers, dean of the University of Mississippi School of Medicine, and president of the Mississippi State Board of Health, has resigned to take a position with the Vanderbilt University, Medical Department, Nashville, Tenn. The resignation is to take effect at end of present session.

Dr. and Mrs. Will J. Knight

Have returned to their home in Newport News, Va., after a motor trip to North and South Carolina.

The Association of American Physicians,

At their annual meeting in Atlantic City, last month, elected Dr. Lewis A. Conner, New York, president, and re-elected Dr. Thomas McCrae, Philadelphia, secretary.

The National Tuberculosis Association,

At its meeting in Atlanta, Ga., in May, elected Dr. Charles J. Hatfield, Philadelphia, president, for the coming year, and Dr. George M. Kober, Washington, D. C., secretary.

Physicians in Congress.

The National Board Bulletin announces that there are six physicians in Congress this year, four dentists, one pharmacist, and several chemists. The physicians in Senate are Dr. Royal S. Copeland, former health officer of New York City, and Dr. L. H. Ball, of Delaware; physicians in the House are Drs. J. J. Kindred, New York, L. Lazaro, New Mexico, C. Browne, New Jersey, and J. W. Summers, Washington State.

The American Gastro-Enterological Association,

At its annual meeting in Atlantic City, last month, elected Dr. Arthur F. Chace, New York, president, and Dr. John Bryant, Boston, secretary.

Danville, Va., Soon to Start on New Hospital.

It is expected that the $250,000 bequeathed the Danville, Va., General Hospital, by the late John E. Hughes, of that place, will be made available for use in August of this year, and trustees of the present hospital have closed for the purchase of a large lot on which to build the new hospital. It is proposed to have a thoroughly up-to-date hospital with capacity for 100 patients. The present hospital will be sold and the money received will be added to the bequest.

The Society for Cinematographic Instruction in Medicine and Surgery,

With headquarters at 105 West 73rd St., New York City, announces that, after two years' intensive experimentation with various cinematographic technicalities, it is now ideally equipped to produce films for the medical, surgical, dental, drug and allied professions, and invites correspondence from all those interested in membership in the Society, as well as those desirous of securing excellent and truthful motion pictures.

Get Your Iodine.

A recent survey made by the State Health Department shows that in sixty Virginia counties a large proportion of the people, especially women and girls, have simple goiter. In tidewater sections there are comparatively few cases of simple goiters, which is attributed to the fact that people near the sea eat more sea food, all kinds of which contain iodine. In all sea salts, and in most natural salts, iodine is

present but this element is lost in the process of refinement. Salts are now being prepared for table use with the iodine content restored. As it is generally agreed that the simplest and most economical way of getting iodine into the system is through the use of iodized salt, the State Health Commissioner has sent out a letter to grocers in the Piedmont, Valley and mountain districts of the State, urging them to keep in stock salt to which a small amount of sodium iodide has been added.

The British Association for the Advancement of Science

Will hold its ninety-second annual meeting in Toronto, Canada, from the 6th to the 13th of August. Over 430 scientists from Great Britain have already signified their intention of attending. This is the first meeting in Canada since 1909. The objects of the Association are "to give a stronger impulse and a more systematic direction to scientific enquiry; to promote the intercourse of those who cultivate science in different parts of the British Empire with one another and with foreign philosophers: to obtain more general attention for the objects of science and the removal of any disadvantages of a public kind which impede its progress."

No technical qualification is required on the part of an applicant for admission as a member of the Association. The form of membership of most interest to Americans, who are cordially invited to join for 1924, is that of annual member. The fee of $7.50 made before or at the meeting entitles the annual member to attend the meeting and to receive the report: $5 entitles the member to attend the meeting and the membership ticket entitles the holder to any of the sectional meetings and to the various popular lectures, receptions, local excursions, etc., which are features of the meeting. Hotel accommodations should be made in advance of the meeting.

Additional information will be gladly supplied by the Local Secretary, British Association, Room 50, Physics Building, University, Toronto, Canada.

Dr. and Mrs. Henry Rose Carter,

Ashland, Va., left recently for Asheville, N. C., where they will spend the summer.

Elected Members of Phi Beta Kappa Society.

Of the thirty-nine students at the University of Virginia elected to membership in the Phi Beta Kappa society this year, four are from the school of medicine: Eugene Osmun Barr, Washington, D. C., Lila Morse Bonner, Greenwood, S. C., Frederic Griffin Dorwart, Newport, Pa., and Luther Wrentmore Kelly, University, Va. They were to be initiated at exercises held during the finals on June 9.

Mr. Aubrey H. Straus,

Director of Laboratories with State Board of Health, recently gave a talk before a regular meeting of the Norfolk County Medical Society, his subject being "The Value of Blood Cultures in Diagnosis."

Relief for German Children.

An editorial appearing on page 16 of April 12th issue of *Literary Digest*, should prove an incentive for us to lay aside any feeling of bitterness which might lurk in us and to help as we can the children of oppressed nations. The American Committee for Relief of German Children, Suite 2202, 130 West 42nd Street, New York City, is co-operating with Quakers in doing what they can to alleviate suffering in this war torn country. The campaign committee is composed of 100 per cent Americans, many of them known to our readers. Are these children responsible for the sorrow and suffering which has come to them? Here is an opportunity. What shall we do with it?

Vets' Bonus Makes Jobs for Stenographers and Typists.

The U. S. Civil Service Commission, Washington, D. C., announces that the passage of the bonus law requires temporary appointment of several hundred stenographer-typists and typists in the Departmental Service at Washington. Both men and women are needed. Examinations for these positions will be held each Tuesday, until further notice, in approximately 600 cities throughout the United States. It is expected the positions will continue for from six to nine months, or possibly longer. Permanent positions will also be filled from these examinations. Salaries range from $1,320 to $1,500 a year for stenographer-typists and from $1,140 to $1,320 for typists. Full information and application blanks may be secured from above named Commission.

Some Birth and Mortality Figures for 1923.

According to reports issued by the Department of Commerce, Bureau of Census, birth rates for 1923 were lower than for 1922 in 21 or the 27 states from which figures were obtained, and death rates for the same period were slightly higher in 25 of the 36 states reporting. Infant mortality rates for 1923 are generally higher than those for 1922, though 25 of the cities reporting showed a lower mortality rate than for the previous year.

The U. S. Civil Service Commission,

Washington, D. C., announces an open competitive examination for graduate nurse, for filling vacancies in U. S. Veterans' Bureau and in the Indian and Public Health Services, applications to be rated as received until June 30, 1924.

Also, examinations will be held throughout the country on July 9, for trained nurse, and trained nurse (psychiatric), to fill vacancies in the Panama Canal Service.

Information and application blanks should be secured from above named Commission.

Education and Child Labor.

Five-sixths of the Virginia children between fourteen and sixteen who went to work last year for the first time had less than an eighth-grade education. Two-fifths were fifth graders or less. These facts, reported by the State bureau of labor and industrial statistics, have led the bureau to urge an educational requirement as a prerequisite to employment.

Christmas Seal Sale Large This Year,

A meeting of the Executive Committee of the Virginia Tuberculosis Association was held in Richmond recently, and report showed that returns from the Christmas Seal Sale (with four counties then to be heard from) are $56,741.21—the largest in the history of the Association. The budget for the coming year was adopted and a program of activities decided upon. Dr. Charles R. Grandy, Norfolk, is president and Dr. William M. Smith, Berryville, executive secretary.

Progress in Chemotherapy and the Treatment of Syphilis

Is the name of a new quarterly journal, which made its appearance in April. It is to be published by the Dermatalogical Research Laboratories, 1720-1726 Lombard Street, Philadelphia, with Dr. George W. Raiziss as editor. It will be devoted to a summary, in concise form, of the more recent work in the lines suggested by its title.

New Buildings at Carville, La., Leper Home.

The first of the additional buildings provided by Congressional Act of February 20, 1923, to enlarge the National Leper Home at Carville, Louisiana, has been completed and twelve lepers who had been temporarily detained elsewhere were moved to Carville, April 4. The additional buildings, all of which are under construction, will be rapidly made available for patients and it is believed that they will be fully occupied within a few months. The appropriation, amounting to $650,000, provides additional beds for approximately 240 patients and increases the present capacity of the institution to more than 400. There is, however, still need for buildings for patients requiring specialized care and also for a therapy building, where instruction may be given in arts and crafts and other diversional employment.

Interest Increasing in "Hygeia."

As an evidence of the value health departments place on "*Hygeia*," the A. M. A. magazine devoted to individual and community health, we note that one hundred subscriptions for it were recently ordered by the Virginia State Health Department. One state society also sent in two hundred subscriptions for this magazine. Isn't there something of interest in it for you and your patients? The price is $3 a year. You may send your order for "*Hygeia*" directly to the American Medical Association, 535 N. Dearborn Street, Chicago.

Position Wanted.

Registered nurse (Virginia), with eighteen years' experience, desires a position as head nurse of a small hospital having a training school, in one of the cities of Virginia. Would prefer an institution specializing in diseases of children, or will consider position with State Board of Health in prenatal and infant welfare clinic. Best of references. Address Number 341, care this journal. (Adv.)

Obituary

Dr. Henry Harrison Jones

Died May 11, 1924, at the home of his daughter, Mrs. M. E. Hansel, Mebane, N. C.,

after a short attack of acute indigestion, and was buried at his old home, Doe Hill, Va. He was born in Highland County, Va., eighty-one years ago, and attended a private academy, Washington College (now Washington and Lee University), and then the University of Virginia. Volunteering for service in the War between the States, he enlisted in Company B, 31st Virginia Regiment, and held the rank of first lieutenant when he was wounded at Gaines' Mill, which rendered him unfit for further military service. After the war, he studied medicine at the University of Maryland, from which he graduated in 1867, and located in Doe Hill, Va., where he practiced his profession for fifty-two years. He joined the Medical Society of Virginia in 1884.

Dr. Jones was a fine specimen of the old time country physician and an earnest Christian worker. He was for fifty years a most faithful and efficient superintendent of the Methodist Sunday School at his home. He was also interested and active in community and county welfare, a patron of education, promoter of good roads, and influential in politics.

Dr. Jones was married three times, and is survived by five children and a large number of relatives. His oldest son, Dr. A. C. Jones, of Covington, Va., died last summer.

Resolutions on Death of Dr. William S. Gordon.

The Richmond Academy of Medicine, at a meeting held May 27, 1924, adopted the following resolutions:

WILLIAM S. GORDON, M. D., 1858-1924, born in Raleigh, N. C., graduated in medicine at the Medical College of Virginia, 1879; took a special course in medicine in the Jefferson Medical College and the University of Pennsylvania, 1879-1880; elected a Fellow of the Richmond Academy of Medicine, 1886; ex-President of the Richmond Academy of Medicine; ex-Professor of Physiology, and later, of Clinical Medicine, in the University College of Medicine; finally, Professor and Emeritus Professor of Medicine in the Medical College of Virginia; a member of the Medical Society of Virginia, the Tri-State Medical Association, and the American Medical Association. Doctor Gordon died in Richmond on April 24, 1924, after two years of illness.

This is a brief biographic sketch of the professional life of Dr. William S. Gordon who was an outstanding figure in the medical faculty of Richmond; a leading diagnostician and consultant in medicine; a capable and revered teacher, holding important professorial positions; and an exemplar of highest personal and professional character.

It is almost impossible to express in few words an appreciation of Doctor Gordon, but those fine, incisive, precise and logical intellectual qualities shown in his mental processes and in his professional teaching so distinguished him that to hint of them is to bring back to memory vividly the splendid attributes of his scientific and professional mind. Really, it may be said that Dr. Gordon was a scientist first and a physician next. The scientific side of medicine was his real place; but yet in the sick-room and hospital, with skill and accuracy he performed a distinguished part.

His high professional and scientific attainments made for him a chief place among Richmond's distinguished physicians; his unsullied character and his Christian life made for him a high place in the esteem of the Richmond medical profession. Therefore,

WHEREAS, death has closed the distinguished career of our colleague be it

RESOLVED, That the Richmond Academy of Medicine expresses by this preamble and resolution its great admiration for the professional and private life of Dr. William S. Gordon, and its deepest sympathy for his bereaved family; and further be it

RESOLVED, That this tribute be spread upon the minutes of the Academy; that a copy be sent the family, and that it be published in the *Virginia Medical Monthly*.

Signed,

A. G. Brown, Jr.,
John Dunn,
Wm. R. Jones,
Committee.

Dr. Robert Llewellyn Powell,

Belmont, Va., died May 17, as a result of being shot several times by a man with whom he had had an argument several days previously. He lived two hours after being wounded. Dr. Powell was a prominent physician of Spotsylvania County and was at one time a member of the Medical Society of Virginia. He was thirty-seven years of age and graduated from George Washington University Medical School, Washington, D. C., in 1909. He was unmarried, but is survived by his mother and several brothers and sisters.

Dr. Robert Allen White,

Fairfield, Ala., died of pneumonia at his home in that place, April 15. He was forty-one years of age and graduated from the University College of Medicine, Richmond, Va., in 1907, after which he served an interneship at the U. S. Marine Hospital, Chicago, Ill.

Dr. John Ramsey Littlefield,

Of Cumberland, Md., a graduate of George Washington University Medical School, Washington, D. C., in 1908, died on April 24, as a result of pneumonia. He was forty-four years of age and served in the medical corps of the U. S. Navy, during the World War. He was connected with the staffs of the Western Maryland and Alleghany Hospitals.

"Excellent nutritional results in most cases"

Adapted to Breast Milk.

Formula by permission of The Babies' Dispensary and Hospital of Cleveland.

To be used only on the order of physicians.

For sale by druggists.

This is the reason why thousands of physicians have found S. M. A. helpful in their work of feeding infants deprived of breast milk.

THE LABORATORY PRODUCTS CO.
Cleveland, Ohio

Literature and samples to physicians on request

"THE DOCTORS' SHOPPING PLACE"

¶THE BERRY STORE is favored by Physicians.

¶As they are usually men of unusual discrimination we are flattered.

Hanan Shoes

C. N. Berry Co.
ESTABLISHED 1879
RICHMOND, VA.

Dunlap Hats

VIRGINIA TRUST COMPANY
RICHMOND, VA
THE SAFE EXECUTOR

Capital $1,000,000 Surplus Earned $1,000,000

ESTABLISHED 1892

To act as Executor, Guardian and Trustee
$25,000,000
of investments held in Trust

Confidential Interviews Invited.

Say, Doctor---

you can talk to us entirely confidentially about your affairs. Come by and let us answer your questions and advise you about your will.

This bank has friends all over Virginia, many of whom have already seen us about their wills.

Write or phone for a special engagement with Mr. G. Jeter Jones, Vice-President.

MERCHANTS NATIONAL BANK
11th & Main Streets. Richmond, Va.

"Safest For Trusts"

Virginia Medical Monthly

OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

Fifty-fifth Annual Meeting, Staunton, October 14-17, 1924.

Vol. 51, No. 4.
WHOLE No. 865.

RICHMOND, VA., JULY, 1924

$2.00 A YEAR
20 CENTS A COPY

CONTENTS.

ORIGINAL COMMUNICATIONS:

Some Observations Concerning Slit-Lamp Microscopy. Hunter H. McGuire, M. D., Winchester, Va. ---- 197

Status of Tuberculosis in Richmond, Virginia, for the Year 1923. W. Nelson Mercer, M. D., Richmond, Va. 209

Variants of the Staphylococcus and Streptococcus Simulating the Gonococcus in Chronic Urological Infestions. Thomas V. Williamsom, M. D., Norfolk, Va. ---- 203

Inguinal Hernia. D. T. Tayloe, Jr., M. D., Washington, N. C. ---- 208

Pyelitis of Pregnancy. S. Beverly Cary, M. D., Roanoke, Va. ---- 212

Malnutrition in School Children. Charles E. Conrad, M. D., Harrisonburg, Va. ---- 214

Malnutrition and Marasmus in Infants. John S. Weitzel, M. D., Richmond, Va. ---- 216

Backache. Roy M. Hoover, M. D., Roanoke, Va. ---- 221

Report of a Case of Mastoiditis Epidural Abscess With Apparently no Middle Ear Involvement. James Erwin Diehl, M. D., Norfolk, Va. ---- 223

The Adult Disabled. Thomas Wheeldon, M. D., Richmond, Va. ---- 225

The Pulmonary Tuberculous Patient as a Surgical Risk. O. O. Ashworth, M. D., Richmond, Va. ---- 227

Cancer of the Cervix. Cora Z. Corpening, M. D., Suffolk, Va. ---- 230

Report of Case of Unusual and Complete Laryngeal Stenosis. J. R. Gorman, M. D., Lynchburg, Va. ---- 232

Treatment of Vincent's Angina. T. Latane Driscoll, M. D., Richmond, Va. ---- 233

Psoriasis. Grafton Tyler Brown, B. S., M. D., Washington, D. C. ---- 234

Electro-Coagulation Methods in the Treatment of Hemorrhoids. A Simple, Bloodless, Ambulant Technique. J. B. H. Waring, M. D., Blanchester, Ohio ---- 235

Determination of Kidney Function. S. H. Rosenthal, M. D., Lynchburg, Va. ---- 238

A Note in Reference to the Bile Reaction in Urine. Wilbur M. Bowman, M. D., Petersburg, Va. ---- 240

Endocrine Radiation as a Means of Improving the Quality and Power of the Singing Voice. H. H. Rubin, M. D., New York, N. Y. ---- 241

ANALYSES, SELECTIONS, ETC. ---- 242

MISCELLANEOUS:

The Coming Meeting of the Medical Society of Virginia. Charles Minor Blackford, M. D., Staunton, Va. ---- 245

THE TRUTH ABOUT MEDICINE ---- 247

PROCEEDINGS OF SOCIETIES ---- 249

BOOK ANNOUNCEMENTS ---- 252

EDITORIAL ---- 254

NEWS NOTES ---- 257

OBITUARY ---- 264

INDEX OF ADVERTISERS—Advertising Page 5.
(For Society Announcements, see page 32).

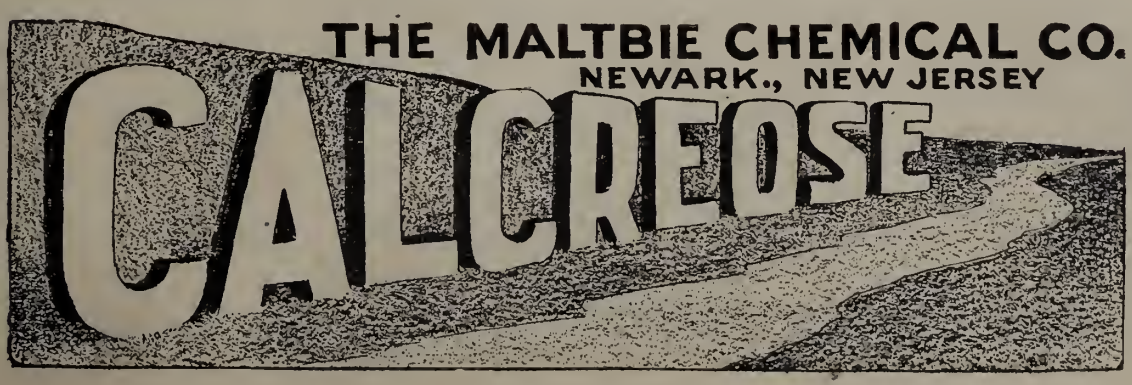
Summer Colds

This is the time for summer colds to develop. Everyone knows how resistant they are to treatment and that disastrous complications may arise. TRY CALCREOSE

CALCREOSE (Calcium creosotate) is a mixture containing in loose chemical combination approximately equal weights of creosote and lime. It has the pharmacologic activity of creosote as used in the adjuvant treatment of tuberculosis, but differs from creosote in that it apparently does not have any untoward effect on the stomach.

POWDER — TABLETS — SOLUTION

SAMPLES of TABLETS on REQUEST



PREVENTING NUTRITIONAL DISTURBANCES IN INFANTS

By far the largest majority of children that are brought to hospitals suffering from severe nutritional disturbances are victims of serious errors made by parents who failed to consult their physicians, and who attempted to feed their babies without a doctor's advice.

If all babies were under a competent physician's care, infant mortality would be surprisingly reduced.

MEAD JOHNSON AND COMPANY realize that the *physician is the only one capable of feeding babies successfully.* MEAD'S INFANT DIET MATERIALS, therefore, have no directions on the package, the mother gets her feeding instructions *only* from her doctor and follows his advice throughout the feeding period.

MEAD'S DEXTRI-MALTOSE, Fresh Cow's Milk and Water will give gratifying results in feeding a large majority of bottle babies.

MEAD'S CASEC AND MEAD'S POWDERED PROTEIN MILK are splendid for fermentative diarrhoeas.

Sample and literature sent at the physician's request.

THE MEAD JOHNSON POLICY

Mead's Infant Diet Materials are advertised only to physicians. No feeding directions accompany trade packages. Information in regard to feeding is supplied to the mother by written instructions from her doctor, who changes the feedings from time to time to meet the nutritional requirements of the growing infant. Literature furnished only to physicians.

Mead Johnson & Company

Evansville, Indiana, U. S. A.

MAKERS OF INFANT DIET MATERIALS EXCLUSIVELY

Virginia Medical Monthly

Official Organ of the Medical Society of Virginia

Vol. 51, No. 4.
WHOLE No. 865.

RICHMOND, VA., JULY, 1924

20 CENTS A COPY
$2.00 A YEAR

Original Communications

SOME OBSERVATIONS CONCERNING SLIT-LAMP MICROSCOPY.*

By HUNTER H. McGUIRE, M. D., Winchester, Virginia.

Any method which constitutes a refinement in ophthalmic diagnosis and which, at the same time, enhances our knowledge of the histopathology of the living eye, demands, on the part of the ophthalmologist, a rigid investigation as to its merits.

When Gullstrand announced, a few years ago, his discovery of a new method of illumination by which it became possible to render the corneal microscope, an instrument discovered thirty years ago and long since discarded, a practical method of diagnosis, my interest in the subject was sufficiently aroused to follow, with some degree of enthusiasm, the literature which has appeared, from time to time, concerning the developments of slit-lamp microscopy. It was not, however, until a few months ago that I decided to put into actual practice in my routine office work, this comparatively new method in ophthalmic diagnosis. My object, therefore, in presenting a communication of this character is not to draw definite conclusions based upon an intensive study of the subject but to give you, from the standpoint of the beginner, some impressions which have been reached from a very limited use of the instrument.

I shall quote very freely from the already published articles by Von Der Heydt, Gradle, Bedell, and other American investigators, and from the Atlas of the slit-lamp microscopy of the living eye by Alfred Vogt, thus far the only completed work devoted to the subject and recognized as being sufficiently authoritative to establish a working basis in slit-lamp investigations. While it must be borne in mind that microscopy of the living eye is still in its infancy and that many years of experience in the use of the method will be necessary to perfect its technic and to interpret the various findings in what might be termed the new field of ocular pathology, I believe that we have reached the stage of development when it can be asserted that it constitutes the greatest advance in ophthalmic diagnosis since the discovery of the ophthalmoscope.

All of you are familiar, no doubt, with the slit-lamp outfit as furnished today. It consists essentially of two parts, a binocular corneal microscope supplied with several oculars and objectives for obtaining different magnifications and the slit-lamp of Gullstrand mounted on an adjustable double arm, and capable of being swung in various positions in order to properly direct the beam of light on the eye and to illuminate the different ocular structures as they are observed with the microscope. The mechanical adjustment of the apparatus is such that it is possible to obtain the various angles between illumination and observation, which are essential in the use of the instrument.

In that it limits the application of its field of observation, the term corneal microscope should now be abandoned. The present binocular microscope as used with the slit-lamp has a much more extensive field of observation and we are enabled to study, with a great degree of accuracy, the histological structures of the cornea, iris, lens and approximately half of the vitreous.

The novice in slit-lamp work will be impressed with the apparent complexity of the apparatus when he first attempts to put it into actual practice. The outfit, as received from the manufacturers, is not assembled and, though very elaborate instructions are given with regard to the manner of setting it up, it is a somewhat complicated procedure. For example, after a rather exhaustive study of the written instructions, the writer attempted to assemble his own outfit with the result that the entanglement was not straightened out until a representative of the firm of Carl Zeiss came down from New York and rearranged the parts. Even after the instrument is properly set up some little experience and practice is required to properly manipulate and adjust the parts so that a sharply defined

*Read before the Virginia Society of Oto-Laryngology and Ophthalmology at its meeting in Lynchburg, April 13, 1924.

image of the spiral filament of the nitrogen burner is obtained.

To quote from Vogt, "The method is based in utilization to the limit of the principle of focal illumination. The advantages of the latter are a lateral illumination by means of an excessively bright sharply defined bundle of light, with a dark background. By means of the slit-lamp we take full advantage of these facts. The light of the nitrogen lamp is not thrown directly into the eye, but at first filtered through a diaphragm provided with a narrow slit. This eliminates aberrant rays. Then after passing a diaphragm of suitable size, the bundle of light is projected into the eye by means of a spherical lens. The densest focal part of the luminous shaft is projected on to the area which we wish to examine."

While Vogt and others advise that the examination should be made in the dark room, in my own work I have been able to make satisfactory observations with the slit-lamp in a room moderately darkened by drawing the window shades. The space occupied by the apparatus, the patient, and the observer is rather difficult to secure in the average size dark room and for the great majority of examinations it is not necessary to exclude all daylight. Objection has been offered to the time consumed in making such investigations in the routine office work of a busy man. After one has had some little experience in making the necessary preliminary adjustments of the slit-lamp and microscope, it is surprising to see how quickly an examination can be made. While some cases will necessarily require a longer study than others, the average investigation can easily be accomplished in from six to ten minutes and, when one considers the vast amount of valuable information to be gained from such a study, time should not be regarded as an important factor. I have not found that patients were unduly fatigued even by a prolonged examination and neither do they often complain of the brilliancy of the light. If the head and chin rests are properly adjusted, the position of the patient is not uncomfortable and the light is no more annoying than that of the electric ophthalmoscope.

The three essential factors in making a slit-lamp investigation are a fixed position of the patient's head, the projection of the beam of light at the proper angle on the eye, and the correct position of the microscope. In other words the visibility of the different structures to be examined is obtained by making frequent changes in the angle of illumination and that of observation, as well as by changing the focus of the light by adjustment of the spherical lens on the bracket of the slit-lamp. If it is desired, for example, to view the endothelium of the posterior corneal layer, after sharply focusing the shaft of light, a very wide angle between observation and illumination should be chosen.

In slit-lamp microscopy three main methods of observation are utilized in viewing the different structures to be examined.

The *first* method is by focal illumination, the ordinary method by means of which we focus a beam of light on to the object we wish to see.

The *second* method is that of transillumination. By this method some media is used as a luminous background in order to transilluminate some object anterior to it. By means of this method it is possible to see the circulation in newly formed blood vessels in the cornea, vacuoles, and dew-like changes.

In the *third* method use is made of the reflected images of limiting surfaces in order to study their surface contour. By this method we can see the corpuscular elements in the lachrymal fluid as they bathe the anterior surface of the cornea and the endothelial surface of the cornea is also brought into view.

The magnification under which we observe with the slit-lamp is from 10 to 100 times. Twenty-five diameters is the most practical magnification and will suffice for most investigations. It is interesting to observe the physiological oscillation of the eyeball when the magnification exceeds 80 diameters. So marked is this oscillation under high power that it materially interferes with accurate observations.

It would be interesting to describe some of the many microscopical changes in the normal and pathologic eye which have been observed by pioneers in slit-lamp work but word pictures can give no adequate conception of the amazing and beautiful details which are being brought to light and which even to the beginner in this method of investigation impresses one with its great possibilities. The beautiful drawings and colored plates in Vogt's Atlas and in recently published articles by Bedell serve to give us some intimation of what may be expected in the future de-

velopment of this work and will furnish a stimulus to other men to follow in their footsteps. Years of experience and hard study will be necessary to master the technic of slit-lamp microscopy and to correctly interpret the pictures as we see them, but this should not deter the ambitious student in his effort to acquire a knowledge of pathological conditions not otherwise obtainable. The very fact that ophthalmology has demonstrated to scientific medicine that the microscope is now capable of being used to examine living tissue should, in itself, furnish an incentive for developing, to the highest state of perfection, a method which is destined to lead us to more exact findings. From the very limited experience I have had in the use of the method, I am already impressed with the value of the slit-lamp as a practical office instrument and I feel that the time is not far distant when it will become an important part of every ophthalmologist's equipment.

At the limbus beautiful views of the vascular loops are obtainable. With regard to these Von Der Heydt thus describes an interesting phenomenon which he recently witnessed: "I was transilluminating a small vessel loop. I could see the individual red cells as they rolled along. I noticed the flow in a certain direction, all of a sudden it stopped, then swerved back and forth, then it turned in a reverse direction, and this phenomenon repeated itself at short intervals. I was evidently witnessing a change in the balance between arterial pressure and negative venous suction."

The examination of both the normal and pathological cornea brings to light new and interesting conditions. Physiological and pathological dew-like infiltrations of the corneal epithelium and endothelium are common findings seen by transillumination. Hirschberg's vessels, a permanent evidence of a former interstitial keratitis, were thought to be connective tissue remnants. The slit-lamp discloses these deep vessels to be permanent carriers of blood. Wrinkling of Descemet's membrane is a common clinical finding and is an evidence of hypotonia. On the posterior corneal surface, varied flora of leucocytes, red blood cells, pigment cells, mutton tallow spots and exudative masses in various stages of recent deposition and absorption are clearly visible.

The aqueous is seen as an optically empty space. In pathology we see leucocytes and other cellular elements in circulation or in more or less rigid suspension. These cells when in motion plainly demonstrate the normal current of the aqueous within the anterior chamber. They rise in the posterior zone near the warm iris and are precipitated anteriorly on the back of the colder cornea.

The iris in slit-lamp studies is an interesting structure and its details are brought into view with a clearness not obtainable by other methods of examination. The pupillary collar is beautiful to observe especially in its active participation in the process of dilatation and contraction. Pigment is often absent over large areas, an evidence of trauma or more often senile depigmentation.

Slit-lamp studies are developing a new anatomy of the lens and new forms of cataract have been isolated and recognized. By shifting the position of the bundle of light the laminations of the lens have been exposed and we see the nuclear surfaces and segmentations and have learned to identify them by their configurations.

It is interesting and rather disheartening at times to study the pupillary space after what has been apparently a perfectly successful cataract extraction by the capsulotomy method and to note the mass of debris which has been left behind. It is equally amazing and gratifying in a number of these cases to find how excellent are the visual results in pupils which under the microscope show considerable blocking.

In this brief and imperfect presentation of the subject I have only attempted to describe a few of the microscopical pictures which have been obtained by men who have devoted much time to the study of slit-lamp investigations and to give you the viewpoint of a very inexperienced observer who has had, thus far, no special training in this work and whose own observations have been made on a limited number of private patients in the past few months. The work is so absorbing and so fascinating in the extreme that I find myself stealing the time of many patients in order to study the microscopical changes in normal as well as pathologic eyes. I find that each day some new picture is developed and the art of properly manipulating the apparatus to obtain the desired result is acquired with much less trouble than one would expect. While I fully realize

that a long experience with some special training will be necessary to attain that degree of proficiency which will enable one to see and correctly interpret the picture. I am confident that such a result can be obtained by practice and study.

I am not one of these who feel that slit-lamp microscopy must necessarily be confined to the activities of a limited group of men or that it should constitute a specialty within a specialty. I am convinced that it is destined to become a routine method of procedure and that the ophthalmologist who fails to take advantage of the opportunities it affords for the scientific and complete investigation of his cases will miss the real satisfaction which comes to those who, in the study of their patients, avail themselves of all that science has to offer.

STATUS OF TUBERCULOSIS IN RICHMOND, VIRGINIA, FOR THE YEAR 1923.

By W. NELSON MERCER, M. D., Richmond, Va.

Definite methods and organization are now generally accepted as essential to combat tuberculosis in every American city. Foremost among the anti-tuberculosis organization requirements is the efficient functioning of a separate division of tuberculosis with a full time clinician in charge. Such a division of the Richmond Health Bureau has been in operation since February, 1921.

Co-operation of private physicians and welfare agencies with the Health Bureau is of utmost importance in the control and treatment of tuberculous patients. Physicians should constantly be on the alert to diagnose tuberculosis in the first stage, and, if in doubt of the nature of the disease, to call the Tuberculosis Clinician into consultation or refer the patient to the Tuberculosis Clinic for examination. Then, as soon as a positive diagnosis of tuberculosis is made, to require the patient to begin immediately the routine treatment, preferably in a sanatorium.

Welfare agencies can render valuable assistance by financing tuberculous patients in sanatoria, and by providing for the families of these persons while they are unable to support themselves.

It is appropriate, therefore, that the tuberculosis situation in Richmond during the year 1923 be summarized for the information of the medical profession and all welfare agencies concerned in the eradication of this disease.

Consultation Service

The Tuberculosis Clinician was called in consultation by private physicians 85 times durig the year—62 times by white and 23 times by colored doctors. Eighty-eight patients were thus examined, 82 of whom were tuberculous and 6 non-tuberculous. Thirty-one were sent to sanatoria; the others remained at home for treatment or left the City.

Hospital Service

Facilities for the treatment of white tuberculosis patients in Pine Camp Sanatorium, and for colored cases in the City Home, were much improved during the year, due to construction of modern buildings at Pine Camp. The capacity of Pine Camp was increased from 36 to 84 when the new buildings were opened on November 17, 1923.

There were 107 patients given free sanatorium treatment at Pine Camp during 1923, and of this number 33 were discharged as improved; 18 were discharged as unimproved or left against medical advice; 13 died; and 43 remained under treatment on December 31, 1923.

Intensive Anti-Tuberculosis Campaign

From February 1 to April 15, 1923, the City Health Bureau, with the co-operation of the Bureau of Tuberculosis Education of the Virginia Board of Health, conducted an intensive campaign aganist tuberculosis in Richmond. Publicity in the form of newspaper articles, lectures in churches, lodge rooms, and other halls, distribution throughout the City of large signs, etc., served to arouse public interest. Day and night clinics were held.

The City and State tuberculosis clinicians gave a course of lectures and practical demonstrations in the diagnosis of pulmonary tuberculosis at the Tuberculosis Clinic to a class of physicians. The moving picture film issued by the U. S. Public Health Service, showing in detail the technic of chest examination, was exhibited to the medical profession of the City and proved most instructive.

As a part of the campaign, Dr. Wm. R. P. Emerson, of Boston, conducted a Nutrition Institute for Undernourished Children, which was attended by physicians, nurses, teachers,

parents, and a variety of social service workers.

Reporting of Tuberculosis Cases

During the year 1923 there were reported to the Health Bureau 598 tuberculosis cases, of which 374 were white and 224 were colored persons. White physicians of the City reported 114 white and 38 colored cases—a total of 152. Colored physicians reported only 21 colored cases.

The Tuberculosis Clinic reported 242 cases—173 white and 69 colored. From miscellaneous sources 183 cases—87 white and 96 colored—were reported to the Bureau.

The object of having all tuberculosis cases reported is to make certain that every case in the City is under supervision by some private or public agency.

Tuberculosis Cases Reported to Health Bureau in 1923.

Reported by	White	Colored	Total
Physicians—white	114	38	152
Physicians—colored	--	21	21
Tuberculosis Clinic	173	69	242
Other Sources	87	96	183
Total	374	224	598

Tuberculosis Cases Under Supervision

On January 1, 1923, there were 543 tuberculosis cases remaining under supervision in the City, and 391 new patients were added throughout the year, making a total of 934 cases under supervision during the year. Of this number 697 were white and 237 colored, as shown in the following table:

Tuberculosis Cases Under Supervision During 1923.

	White			Colored			Total		
	Male	Fem.	Total	Male	Fem.	Total	Male	Fem.	Total
Remaining Jan. 1, 1923	185	237	422	58	63	121	243	300	543
New Cases During 1923	136	139	275	56	60	116	192	199	391
Total	321	376	697	114	123	237	435	499	934

Of the 598 cases reported during the year, 391 were under supervision on December 31, 1923, as follows:

Status of Cases Reported During 1923 *at End of Year.*

	Total Reported	Under Supervision Dec. 31, 1923	Died	Left City	Total Discharged
White	374	275	45	54	99
Colored	224	116	70	38	108
Total	598	391	115	92	207

Tuberculosis Deaths

There were 203 deaths from pulmonary tuberculosis in Richmond in 1923, 83 white and 120 colored. With 697 white and 237 colored cases under supervision, there were approximately 8 white and 2 colored cases under supervision per annual death.

Cases Under Supervision Per Annual Death.

	No. Deaths from Pulmonary Tuberculosis, 1923	No. Cases Under Supervision	No. Cases Under Supervision Per Annual Death
White	83	697	8.4
Colored	120	237	2.0
Total	203	934	4.6

Tuberculosis Death Rates for 1923.

	Population	No. Deaths	Death Rate per 100,000
White	126,200	83	66
Colored	54,844	120	219
Total	181,044	203	112

Among the factors causing the much higher colored death rate (3.3 to 1) may be mentioned the following: (1) Racial susceptibility and ignorance; (2) Insanitary living conditions; (3) Failure of patients to be examined and start proper treatment in the first stage of the disease; (4) Failure of physicians to diagnose and report early cases.

Tuberculosis Clinic

Summary of Patients Examined in Tuberculosis Clinic During 1923.

	Tuberculous	Non-Tuberculous	Suspic s	No. Patients	No. Visits
Tuberculosis Clinic:					
White	332	317	13	662	1,262
Colored	121	199	17	337	509
Nutrition Clinic:					
White	11	198	5	214	379
Colored	6	35	3	44	94
Total	470	749	38	1,257	2,244

How Patients Were Referred to Clinic

There were 897 new patients referred to the Tuberculosis Clinic and the Nutrition Clinic as follows:

Patients Referred By

Physicians	112
Health Bureau Nurses	176
Other Patients	91
Publicity	89
Relatives and Friends	63
Child Labor Examiner	71
Associated Charities	48
Voluntary	48
State Board of Health	29
Other Sources	170
Total	897

Occupations of New Tuberculosis Patients

The occupations of the 255 new positive tuberculosis patients attending the clinic were as follows:

Laborers	74
Housewives	54
Students	24
Clerks	23
Tobacco Factory Workers	16
Household Servants	12
Barbers	9
Others	43
Total	255

Method of Exposure to Tuberculosis by New Patients Having Tuberculosis, Attending Clinic During 1923.

	In Home	Relative in Another Home	Other Exposure	No History of Exposure	Total
White	70	9	7	90	176
Colored	24	0	2	53	79
Total	94	9	9	143	255

Tuberculosis Patients Referred to Sanatoria in 1923.

Name of Sanatorium	Referred by			Transfer from other Hospitals	Total
	Tuberculosis Clinic	Private Physician	Consultation		
Pine Camp	44	10	20	9	83
City Home	16	29	4	11	60
Blue Ridge	19	15	5	3	42
Catawba	3	4			7
Piedmont	10	1	2		13
Other	4				4
Total	96	59	31	23	209

Summary

1. Richmond physicians utilized the free consultation service of the Tuberculosis Clinician more frequently than in previous years.

2. Of patients under treatment at Pine Camp Sanatorium, 30.8 per cent were discharged as improved, showing an increase in the percentage of improvement.

3. The intensive anti-tuberculosis campaign brought to the attention of the public the necessity of diagnosis and proper treatment of all cases in the first stage of the disease.

4. Of the 934 cases under supervision during 1923, 542 had been supervised the previous year, and 391 new cases were added.

5. Among the 598 cases reported in 1923, 115 died, and 92 left the City before December 31st. Of the total of 203 deaths, 56 per cent were of cases reported during the year, indicating delay in reporting cases until in an advanced stage.

6. The number of white tuberculous patients under supervision per annual death was about the recognized average, or 8.4, while only two colored cases per annual death were being supervised.

7. Although the colored death rate was 3.3 times the white rate, the total death rate of 112 per 100,000 was the lowest in the history of the City, and compares favorably with other cities of equal size and similar population.

8. The Tuberculosis Clinic is recognized as a center for the diagnosis and instruction of all tuberculous citizens who are unable to pay for the private services of a physician. Visits to the Clinic averaged 1.9 per white patient, and 1.5 per colored patient. The percentage of definitely tuberculous cases examined at the Clinic was: White, 50.1; Colored, 35.9.

9. Private physicians referred 12.4 per cent of all cases to the Clinic for examination.

10. Among the occupations of new tuberculous patients examined at the Clinic, 29 per cent were laborers, and 21 per cent were housewives. Only 6.2 per cent were employed in tobacco factories.

11. Fifty-five per cent of tuberculous patients denied any exposure to tuberculosis, while 36.8 per cent gave history of exposure in their own homes.

12. Of the 598 cases reported to the Health Bureau, 209, or 34.9 per cent were sent to sanatoria in this and other states, and 143, or 23.9 per cent were given sanatorium treatment free of charge in Richmond.

Conclusions

1. The campaign against tuberculosis is showing gratifying results in Richmond.

2. The problem of lowering the negro morbidity and mortality tuberculosis rates demands increasingly intensive methods.

1001 *West Grace Street.*

VARIANTS OF THE STAPHYLOCOCCUS AND STREPTOCOCCUS SIMULATING THE GONOCOCCUS IN CHRONIC UROLOGICAL INFECTIONS.*

By THOMAS V. WILLIAMSOM, M. D., Norfolk, Va.
Staff Urologist to Protestant Hospital; Consulting Urologist to U. S. Veterans' Bureau.

This article is based upon a series of clinical and laboratory observations of the variants of the staphylococcus and streptococcus. We find in professional life many phenomena which intrigue the mind, baffle the understanding, and stimulate the imagination. Not the least of these has been the apparent disregard of these two organisms to the established laws of morphology. As urologists, we are most especially interested in their behavior within the genito-urinary tract where we quite frequently find them associated, either primarily or secondarily, with the gonococcus. In this event, morphotic deviation from the ground type is confusing, to say the least, and the profession has long felt that, in this respect, there are certain factors lacking in what it regards to be a satisfying complement of knowledge. The relative paucity of literature applicable to everyday professional life relating to this atypical morphosis is quite evident, and the writer feels that an article, which may serve to stimulate professional expression on this subject, is timely.

The object of this paper is not an attempt to relieve the gonococcus of morbid responsibility. It is rather an effort to assist in establishing a state of knowledge concerning chronic urethral infections, which is compatible with reason. Politic conduct of the practice of medicine is, at times, very rightly and properly at wide variance with reason. For the best interest of all concerned, any diplococcus observed in the urethral discharges, either acute or chronic, primary or secondary, should be regarded as the gonococcus until proved otherwise. Although this is an excellent precaution to take until exact etiology is ascertained, it is often harshly and gratingly contrary to reason. We inherently feel that such organisms may not be gonococci because the indications of infection time and clinical symptoms point to the contrary.

One reasons thus: it is a known fact that the vast majority of acute pyogenic infections within the urethra are caused by that inveterate foe of moral turpitude, the gonococcus, and that, when once established there, it may persist for years. That we do not often see it after three years is the experience of us all and, that it usually disappears in much less time than that, under adequate treatment, is the generally accepted belief. I know of no authentic case in which the disease did not eventually respond to treatment.

We know that acute gonorrhea is lamentably easy to transmit while, for obvious reasons, from the standpoint of transmission, we concede that the chronic stage is the most dangerous. But, if we multiply our professional experience, with our own patients, by the tens of thousands of others who have had the disease, we appreciate the fact that countless numbers harboring a lingering, catarrhal urethritis do not infect sexual partners. Broadly digesting this knowledge, we conclude that secondary infections often outlive the primary, since we cannot, logically and reasonably, conceive of the gonococcus so often living in man attenuated to the degree that it will not pick up virulence and gain new life when transplanted upon fresh human culture media. We fully appreciate the actuality that this organism may become so attenuated in a given individual that the morbidity occasioned by it may be reduced to an inconsequential inconvenience; but experience has taught that it quickly reassumes its pristine virulence when transferred to a new feeding ground.

We know that the first several inches of the outer urethra is a normal habitat of multitudes of bacterial parasites which are easily persuaded to become pyogenic, if an avenue of entrance is created for them. Limiting the discussion to that form of urethritis, set up by the gonococcus, we perceive that, while this organism yet lives, mixed infection may result, which may persist for an indefinite time.

Personally, I feel that we undervalue the phase of mixed complicity with the gonococcus. I believe that from the very beginning the pure gonorrheal type of the disease, in many instances, quickly becomes a mixed in-

*Read before the Norfolk County Medical Society, June 6, 1924.

fection. From their inception, we see discharges which vary noticeably in color. Some are greenish. some are yellow, some are lemon, some are white. That different strains of the gonococcus should possess this chromogenic variation is questionable. Culture of different colored discharges, made for the subject matter of this article, shows that other organisms are present. For instance, in the green shade of the discharge streptococcus viridans and the bacillus pyocyaneous have been found, while the staphylococcus aureus, citreus and albus have been present in the lighter shades. Quite logically, one may suspect that from the earliest urethral activity the gonococcus allies itself with some organism which possesses certain chromogenic peculiarities when growing on either a natural or an artificial substratum.

I am much more apprehensive of the infections exhibiting the greenish discharge than of the other color types. They are usually more virulent; they are predisposed to fulminating complications, and they seem to be more addicted to the production of stubborn sequelae.

Whether or not the gonococcus is eliminated by adequate treatment, or falls a victim to the overpowering onslaughts of innumerable secondary marauders, does not concern our reasoning. We finally arrive at the point where we conclude that there are many instances of urethral inflammations which began as a gonorrhea, which do not now show the gonococcus but, in which we observe diplococci so closely resembling that pathogerm, to the casual glance, that we are compelled to resort to the finer and more complicated methods of examination to be certain of our diagnostic ground. We are then confronted with secondary infections kept alive by organisms whose morphotic deviation from the ground type is a source of diagnostic uncertainty and which, doubtless, have been greatly responsible for much of the hesitancy on the part of the profession in prognosing the future of the one time gonorrheic.

The two major micrococcic offenders in pyogenic infections of the urethra and adnexa are the gonococcus and the staphylococcus. Of course there are other forms of bacterial life causative of or associated with such infections, but they are not the consistent malefactors against the physical well-being of the urological tract as these two have proved themselves to be. The streptococcus is quite often found in these morbid processes and, while it is not so frequent as the staphylococcus, it seems to induce graver symptoms and more intractable, destructive pathology.

On the grounds of frequency of occurrence and similarity in characteristics, other micrococci are not so apt to be confused with the gonococcus as the variants of the two already named. The micrococcus catarrhalis is a true Gram-negative diplococcus and may be characteristically intracellular, but it does not occur with the same degree of regularity or frequency. In contradistinction to the gonococcus, it thrives luxuriantly upon any ordinary culture media and, while so growing, its culture showing makes differentiation from the gonococcus comparatively simple. Broadly speaking, although the prudent diagnostician should be keenly alert to the possibility of a varied infection contingency, he finds that he encounters the combination of gonococcal and staphylococcal pathology much oftener than all the rest and that, when the streptococcus is present, he meets a more acute symptomatology.

It is generally conceded that staphylococcal infections are the more frequent while streptococcal incursions are the more virulent. With this one reservation, the general remarks concerning them in the urological tract are practically the same. They are everywhere. They are concerned in all kinds of pus formation in all parts of the body. They are preternaturally busy and readily become accessories to urological infections. From the prognostic and diagnostic standpoint, they would not be so troublesome to the urologist if they were consistently true cocci which stain uniformly. But they are not loyal to the textbook standards of bacteriology. They insist on being perverse and inconstant. They may be oval in shape or grouped together in pairs and be sharply diplococcic in outline. They are usually Gram-positive but, in the presence of albumen or when protected by an intracellular position, they may be relatively Gram-negative. In these inconsistent respects, we find, in them, organisms which dangerously simulate the gonococcus and, should the basic aniline stains be the sole criteria of diagnosis, they will inevitably be mistaken for it.

They may reach the urological tract by haematogenous transportation from distant foci in the tonsils or teeth; they may transmigrate from the lower bowel; they may descend from the kidney, and, since they reside normally, as parasites, within the outer urethra,

they may become pyogenic following trauma, chemical erosion or gonorrheal invasion of that structure. I have treated a number of virulent infections following an influenza. That variants of these two organisms must be associated with the gonococcus to simulate that organism is a mistaken impression. Martin[1] has succeeded in isolating the diploid staphylococcus from the urine of children in whose histories no suspicion of gonorrhea could be traced, while Hargrave[2] has found it in the vaginal secretions when that disease was not in question.

No well informed practitioner would think of disputing the fact that these chronic urethral and adnexal manifestations constitute a major problem of diagnosis, prognosis and management. Verily they are so consistently puzzling that all of us have lamented the lack of quicker, simpler and more certain methods of arriving at an exact understanding of them. To account for these variants from the ground types encountered in this pathology, we see mentioned pleomorphism and involution or degeneration of bacteria. These phenomena concern extremely interesting phases of bacterial life: a more acute understanding of which will dissolve no little of the fog of perplexity which obscures the subject under discussion.

It was at one time believed that Lankester and others had conclusively shown that certain species of bacteria pass normally through coccus, rod, spiral and filament forms in the course of their development.[3] To this developmental phenomenon the term pleomorphism was applied. Other species were regarded as strictly monomorphic exhibiting at all times a single growth form. The more recent opinion is, that bacteria are divided into a limited number of varieties according to their form and action but these varieties never change into other forms.[4] It is thought that errors in technique, resulting in contamination of the cultures, were responsible for the original view of pleomorphism. Pleomorphism means the property of having many forms, and the present interpretation of the term is to the effect that an individual variety of bacteria may appear to possess more than one shape under different conditions of growth. For instance, the staphylococcus may be both round and diploid and yet retain its basic classification as a coccus.

Recent studies in the hydrogen ion concentration relative to bacterial life show that the shape of these micro-organisms is easily influenced by variation of the conditions surrounding their artificial growth, and that such change in shape does not materially alter their pathogenicity. Physiology of bacteria is more important than morphology.

Changes in form of individual members of different species of bacteria are not always the result of untoward growth environment. Hiss and Zinsser[5] mention that certain organisms, when thriving under apparently ideal and normal culture conditions, will present perfectly healthy but atypical individuals. However, these variants do not depart from the parent type, i. e. if the parent is a bacillus the variants will be bacilli They may simply show an unnatural clubbing, or beading or staining, or other peculiarity, and cannot, under any condition, be propagated into a distinct type which differs from that of the parent.

To frame a broad and comprehensive definition of pleomorphism, we may say that the term means a change in form of individuals in a species of bacteria with no corresponding alteration of primal pathogenic properties.

Naegeli applied the term involution to bacteria. He observed that under certain conditions there appeared in cultures of different species, especially the rod like forms, irregularly swollen and distorted individuals. His opinion, that they were produced by imperfect and degraded growth, has been abundantly substantiated until now, as Zinsser observes, most any micro-organism, when growing under inhibitory influence, or as the victim of malnutrition, may become degenerated to an extent that it may be morphologically unrecognizable. In speaking of involutes or degenerates in the bacterial family, one pictures individuals which are distorted, broken down, starved out or crippled. The image of clear cut, sharply outlined, healthy specimens is not visioned.

Both tyes are readily demonstrated in the human discharges, so that we have a more comprehensive idea of this atypical morphosis, if we bear in mind both pleomorphism and involution. Whether or not such changes are due to some natural phenomenon, resulting in pleomorphism, or to attrition, with consequent degeneration, is really immaterial from the standpoint of diagnosis, since culture and subculture will always establish the basic identity of the parent type. The vital point to bear in mind is that these minute members of the plant family are not constant in form, and,

since they cannot change much in shape without encroaching on the form characteristics of other genera within the same class or group, they might, by cursory examination with the simple basic stains, be confused with kindred genera. It is encouraging to know that atypical, degenerated or pleomorphic bacteria, when transferred to an artificial environment having an abundant complement of light, air, moisture, heat and food, will reassume the morphological identity of the type from which they sprang. Thus we find that atypical staphylococci and streptococci will become true cocci again and be uniformly Gram-positive.

The incident of atypical deviation from the normal form in these two organisms, when living within the urethra and adnexal contiguities, is much greater than might be suspected by a casual study. It is really striking, and, at times, startling to observe how closely they simulate the gonococcus, not only in shape, but in staining reaction and seeming intracellular position as well. A beautiful picture of the similarity in shape may be seen on page 110, plate IX, figure 2, Key's Urology. A repeated search for them will reveal the diploid form in nearly all cases of catarrhal urethritis. In our series, we found them in 75 per cent of all cases.

I believe it is correct to say that these organisms are not Gram-negative, although they may appear to be relatively so. In so far as I have been able to learn and observe, they may be relatively Gram-negative for the following reasons: the staining reagents may be weak, impure or decomposed; the slide may be greasy and unclean; the albuminous urethral media may protect them from the stain, and, if by chance they should be intracellular, they may be inaccessible to the stain. They are Gram-positive in culture.

My experience has been that these organisms are not often intracellular. I am not prepared to state definitely that they ever are. They are prone to be superimposed upon epithelial cells, and, at times, they are present in such enormous numbers that, while they seem to be intracellular, they are in reality lying upon the leucocytes.

The microscopic picture is, as a rule, a heterogeneous one. Diplococci are scrambled with cocci and the size of each may vary considerably. This is not always the case. In some specimens the only organisms demonstrable are true diplococci, but their affinity to epithelial cells and general extracellular position is quite suggestive that they are not gonococci, even if they should be relatively Gram-negative.

When a decision of any gravity is in order, it should not be based on staining criteria alone. There are too many loopholes for error to slip in for this to be advisable. Parker[6] very aptly states that carefully repeated culture and subculture is the most steadfast reliance and should always be resorted to when in doubt. He thinks that the microscope, by itself, cannot be relied upon for a final decision.

In speaking of culture of these discharges, it seems rather odd and surprising to note, in the initial microscopic examination of the urethral contents, so many instances in which diplococci are present, and then to find that none show up on the culture media. Instead, there appear typical colonies of staphylococci or streptococci. From this, one very naturally supposes that these organisms have been masquerading as diplococci, and, in this manner, some of the apparent failures to grow the gonococcus may be explained. In some of our cases, Martin noticed now and then that the individuals in an occasional colony of staphylococci would be diploid in shape, while the colony presented all the cultural characteristics usually observed in staphylococcic growth, and that when subcultured the organisms would discard the diploid outline for that of the true coccus.

A check of the results from culture in two hundred of these chronic cases shows that no gonococci were found in the fifty-two giving a bona fide history of a three year lapse since the initial infection. In the remaining one hundred and forty-eight cases, this organism was not often demonstrated after nine months, even when the patient had had but indifferent treatment. The longest infection time which could be reasonably proved on the gonococcus was nineteen months Repeated examinations were made after vigorous provocative therapy to the urethra, prostate and vesicles. This paragraph is not inserted for the purpose of refuting or nullifying the findings of contemporary urologists whose results do not entirely accord with these. It is set down to substantiate a foregoing statement to the effect that we do not often find the gonococcus after a lapse of three years from the primal activity. It is the experience of every urologist with whom I have

spoken that a longer existence time than this is rather unsual. When the findings are to the contrary, it is quite in order to scrutinize the history for possible flaws. The indefinite survival of the gonococcus, as a pathogenic organism, is the exception rather than the rule. The rapidly accumulating mass of statistics compiled from extensive laboratory data, indicates that this observation is well founded. It is appropriate and permissible to remark, in this connection, that exact culture readings are essential before deciding the etiology of chronic urethral discharges wherein diplococci are in question.

The percentage of erroneous histories given on the first interview with the patient warrants more than passing mention. Since their trouble is connected with moral laxity, some of these patients attempt to conceal the more recent falls from grace and do not hesitate to mislead their medical advisor. This is especially true of the less intelligent married class who fear the consequences of exposure at home, and who, for protection in that quarter, seek to lay the blame of the present difficulty on some more remote indiscretion. After the patient and physician become better acquainted and the former learns that concealment is unnecessary, the true state of affairs is often revealed. Thus the percentage of indefinite infection time is materially lowered. This occurrence has happened so frequently in the present series that the writer feels it is not amiss to suggest that some leniency should be accorded the gonococcus before it is damned to preternatural longevity in a given case. Seeking moral whitewash or domestic security, many men are shameless liars. I prefer to trust professional experience relative to the longevity of the gonococcus any day, rather than place implicit reliance in an individual history.

This article is intended to deal exclusively with the similarity of the variants of the staphylococcus and streptococcus in relation to the gonococcus. Without going into tiresome details and statistics of the many discharges cultured and hundreds of microscopic examinations made, the following conclusions are drawn:

(a) Most primary gonorrheal invasions quickly become mixed infections. The color of the discharge is indicative of the variety of the associated organisms.

(b) The superior staying qualities and overwhelming numbers of secondary aggressors seem to enable them to drive out the gonococcus and leave them in possession of the urological field. The numerical balance among these secondary organisms, is strongly inclined toward the staphylococcus. This conclusion naturally embraces the elements of time and thorough, adequate and rational treatment.

(c) Diploid staphylococci and streptococci are not necessarily associated with the gonococcus to assume that shape. They may be found in urological tracts which have never suffered a gonorrhea. They are frequently observed following an attack of influenza.

(d) At one time or another they may be demonstrated in the vast majority of cases of urethral catarrh.

(e) The basic aniline stains are absolutely unreliable criteria of accurate diagnosis. Gram's stain is relatively so.

(f) A heterogeneous show of micrococci under the microscope is indicative of a secondary infection with staphylococci or streptococci, it matters not what the shape may be.

(g) Careful, repeated culture is indicated in every doubtful case.

(h) The final significance of these findings is that so-called chronic gonorrhea is often not gonorrhea at all, but is a secondary infection; and that diplococci appearing in persistent urethral discharges are not necessarily gonococci, no matter what the staining reaction may be. A knowledge of this fact should not incline the profession toward carelessness in dealing with these cases. It should rather stimulate an heightened thoroughness in determining the exact etiology for it would be just as disastrous to fail to recognize the gonococcus as it might be to confuse other organisms with it.

I can conceive of no greater injustice which a member of our profession could do to a fellow human than to brand him as a gonorrheic when he is not, especially when this damning decree is handed down to an individual who now may be leading a continent or a clean married life; it matters little what his past may have been. As a profession, we have been led to believe that the gonococcus is intransiently antagonistic to death and we have cloaked its activity with a mantle which, like Joseph's coat, never fades. This attitude of mind is, for the most part, terribly unfair to our patients. Not infrequently, straight-living married men consult us whose moral indiscretion is a thing of years long gone. They have a urethral catarrh in the discharge from which

diplococci may literally teem. Notwithstanding the age old belief regarding their long life, common sense tells us that these organisms cannot be gonococci because no man can co-habit with his mate under these conditions without having infected her at some time, if they were gonococci. A woman must have once suffered a gonorrhea to become partially immune to that individual strain of the gonococcus. I doubt if there is a physician within the sound of my voice but who has found himself in the awkward position of dealing with such cases. It is with this type of pathology that this article is chiefly concerned and I maintain that we owe a pressing obligation to humanity to unite in a common effort to more clearly understand this great problem. The present conception of gonococcal activity seems to be neither altogether correct, nor is it quite in keeping with the spirit of professional progress in other fields. We should strive to arrive at a state of knowledge wherein we definitely know when the gonococcus is in question or when its simulants are the etiological factors of disease.

I wish to publicly credit Dr. Walter B. Martin with a generous share in this work. We have been studying the subject together for some years, he from the laboratory side, the writer from the clinical and microscopic side. In a large measure, it has been a joint effort.

I also desire to express my appreciation to Mr. H. G. Parker, Bacteriologist and Pathologist for the City of Norfolk, for his patient, untiring assistance and invaluable technical advice.

References.

(1) Martin, Walter B., Norfolk, Va. Personal Communication.
(2) Hargrave, Edward T., Norfolk, Va. Personal Communication.
(3) Tuttle, Albert H., University of Virginia. "An Introduction to the Study of the Bacteriae," pp. 152-156.
(4) Warren, John Collins. "Surgical Pathology and Therapeutics," pp. 19-20.
(5) Hiss, Phillip Hanson and Zinsser, Hans. "A Text Book of Bacteriology," pp. 19-24.
(6) Parker, H. G. City Bacteriologist and Pathologist, Norfolk Va. Personal Communication.

Suite 501-507 *Flat Iron Building.*

INGUINAL HERNIA.*

By D. T. TAYLOE, Jr., M. D., Washington N. C.
Surgeon to Washington Hospital, Washington, N. C.

The treatment of inguinal hernia depends upon the age, size, and general health of the patient, and the size and type of the hernia. All things being equal, a truss is only indicated during infancy and old age, and in cases where co-existing diseases contraindicate operation. Even in these types of patients complications frequently arise demanding surgical aid. During childhood a truss should be worn until the fifth year; at the end of this time unless there is marked improvement or a cure established operation should be advised. In youngsters where the hernia is extremely large and interferes with the general health of the child or if the hernia becomes incarcerated or strangulated, operation is indicated. It has been the experience of most surgeons that a large percentage of indirect inguinal hernias in childhood are curable by a properly fitted truss. In old age where the tonicity of the tissues is below par, and where the anatomy is greatly distorted by a constantly worn and frequently ill-fitted truss, where the reaction of the tissues is slow, union poor and weak, confinement to bed dangerous; operation is likely to be a failure and sometimes followed by disastrous complications. This type of patient has worn a truss through life and as he grows older the tissues become relaxed and attenuated, the hernia increases in size to the extent that it can no longer be retained by a truss, strangulation sooner or later occurs demanding operation. This is the type of case that greatly increases the percentage of recurrences.

In complete inguinal hernias and relaxed external inguinal rings are common occurrences. It has been my brief experience that these cases frequently present such vague symptoms and indefinite physical findings that it makes accurate diagnosis at times extremely difficult or impossible; hence many of these cases go about from one man to another being treated for cholecystitis, visceroptosis, indigestion, etc., frequently operated upon for chronic appendicitis. Of course, if it is obvious that the patient has an incomplete hernia or relaxed ring that is producing symptoms, I think operation is advisable, but at the same time I do not think it justifiable to operate upon every case of relaxed external ring with no other indication. In these doubtful cases, especially in young adults, if a truss is applied for a while, a cure may be established, or at least the symptoms relieved. If after the truss is discontinued the symptoms recur, the diagnosis is no longer doubtful, operation is indicated. This simple and safe procedure

*Read before the Seaboard Medical Association of Virginia and North Carolina in Newport News, Virginia, December 4-6, 1923.

will in the long run avoid unnecessary operating on at least a few cases that will be of no benefit to the patient or the surgeon himself.

Before beginning any operation for hernia, very careful pre-operative preparation of the operative field is quite important in avoiding infection, as we all know that infection is the common cause of recurrences. It is the object of every operator in repairing a hernia to reconstruct the inguinal canal and make it as strong as possible in an effort to guard against a recurrence, but in our effort to cure the hernia not to create another abnormal condition such as atrophy of the testicle or unpleasant post-operative sensory disturbances. In operating for inguinal hernia great care should be taken not to injure the ilioinguinal or iliohypogastric nerves or sensory disturbances will develop. The tissues should be handled very gently, especially in separating the sac from the cord, as here we can easily damage the vas deferens causing future impairment of the testicle, or tear some of the small blood vessels causing a troublesome oozing which if not entirely controlled will greatly predispose to infection. High ligation of the sac is considered by all a very important step in any operation for hernia; this obviates the formation of a funnel-shaped depression in the peritoneum which somewhat predisposes to a recurrence. It is best to open the sac near the internal ring, insert the index finger into the sac and with a dry piece of gauze separate the sac from the cord above the internal ring. In children and in young adults, after the sac is separated, ligated and removed, the stump immediately retracts out of sight beneath the internal oblique, but in cases of large indirect hernia in elderly individuals where the elasticity of the peritoneum is not so great this does not occur. Here we transplant the stump of the sac and fix it to the inner surface of the abdominal wall above and median to the internal ring, the suture being passed from within outward and tied into the internal oblique or the aponeurosis of the external oblique. Occasionally in direct hernias where the mouth of the sac is very large, we remove the pouting sac and close the opening in the peritoneum, as is done in appendectomy by continuous suture. While handling the sac of any hernia always make a careful search for a co-existing femoral or direct and indirect hernia. Very often in operating for direct hernia a small indirect sac can be found coming out externally to the deep epigastric vessel. This is best demonstrated by traction on the

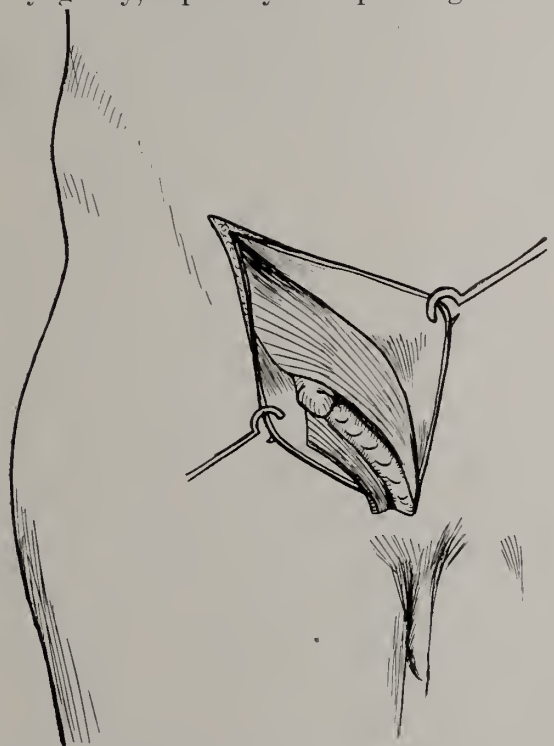


Fig. 1—Showing opened inguinal canal. Hernia and incised Cremaster Muscle.

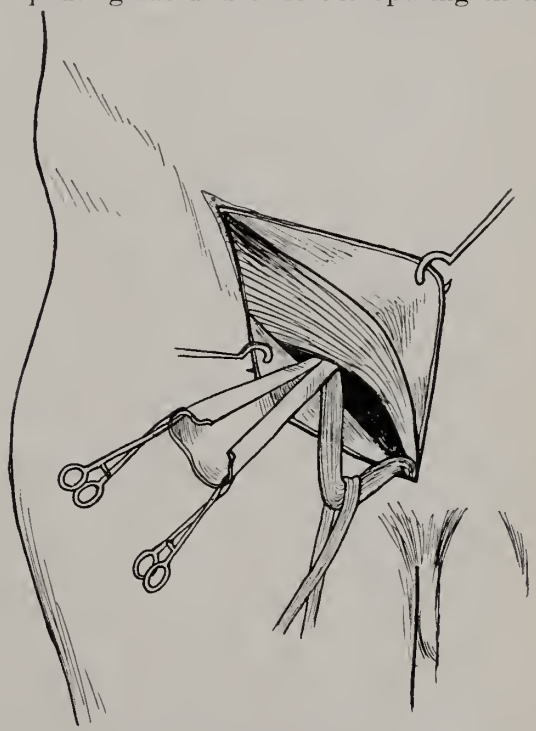


Fig. 2—Showing sac opened and separated. Large defect at lower internal angle of canal.

cord. Where this exits it is best to convert the direct into an indirect sac by sliding the peritoneum beneath the deep epigastric vessels thus obliterating the direct sac.

In operating for indirect inguinal hernia in children and young adults where the hernia is small, the muscles well developed and the regenerative powers of the patient good, most any of the operations now being done gives very satisfactory results. But in cases of direct hernia, double or single, and in large indirect hernias in elderly individuals where the muscles are flabby, anatomy distorted, all structures attenuated, and the reaction of the tissues only fair, even the best operators and operations are put to a test. In these types of hernias there usually exists a very large defect at the lower internal angle of the inguinal canal to be repaired and in doing so a considerable amount of tissue is frequently required. In reconstructing an inguinal canal so damaged and distorted, it is often necessary where the conjoined tendon is flabby and poor to utilize the rectus muscle. This is made simpler by severing the anterior sheath of the rectus muscle near its fusion with the aponeurosis of the external oblique. This procedure is especially of value in cases of double direct hernia and in other cases where the tension of the tissues is too great. In these cases where recurrences are most feared, a complete transplantation of the cord gives better and more dependable results. As yet we have not had any complaint of tenderness of the cord due to its superficial position or any signs of impairment of injury to the testicle.

Inguinal hernia as well as other surgical conditions requires some post-operative consideration. After completion of an operation for inguinal hernia, the patient should be placed in a position of relaxation. This aids greatly in the promotion of early primary union and adds considerably to the comfort of the patient. The aponeurosis of the external oblique is continued downward to aid in formation of Poupart's ligament and, after forming Poupart's ligament, is continued into the thigh as the fascia lata. Some of the fibers of the internal oblique and transversalis arise from Poupart's ligament and thus it is evident when the ligament is put on the stretch it in turn exerts some pull on the external oblique, internal oblique, and transversalis muscle. This is readily demonstrated by extending the thigh. Following operation two pillows are placed under the knees of the patient and, after he recovers from the anesthetic, two pillows are placed beneath his head, the latter relaxing the rectus muscle. This position brings about a condition of complete relaxation, brings the structures employed in the repair of the hernia in closest

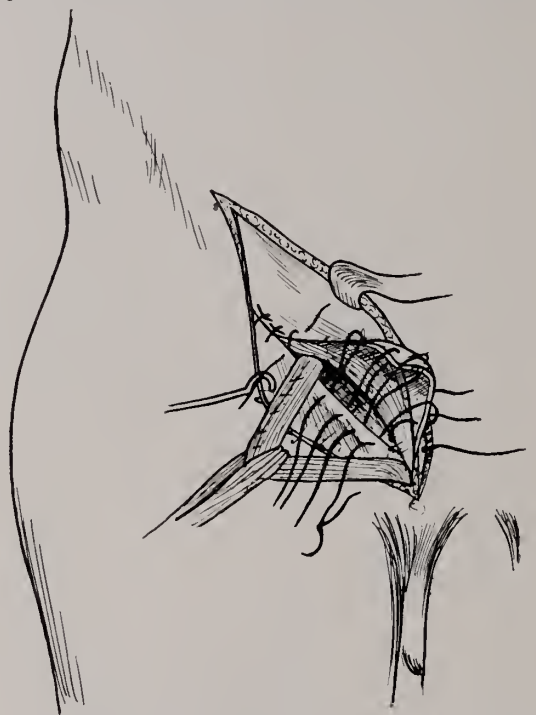


Fig. 3—Showing first layer of sutures placed and untied. Cremaster sutured around cord.

approximation with least possible tension of the tissues. The patient is kept in this position for nine days; at the end of this time the stitches are removed and the patient finally discharged from the hospital on the fourteenth day with proper instruction as how to care for himself for the next thirty or sixty days.

For the past two years we have been doing the following operation almost routinely in all cases of direct hernias and large indirect hernias, in elderly individuals where a recurrence was feared. There is nothing original about this operation. I first saw it performed by Dr. Walter E. Lee at the Pennsylvania Hospital in Philadelphia and termed by him a modified Halsted operation. The incision is made parallel to and above Poupart's ligament as usual and the aponeurosis of the external oblique is exposed. The aponeurosis is opened about half an inch to the median side of the cord passing through the internal pillar of the external ring, thus providing a

generous flap for imbrication. The inguinal canal and its contents is exposed, the cremaster muscle is incised and reflected aside. The sac is separated and removed and the stump transfixed to the inner surface of the abdominal wall well above and median to the emergence of the cord. The cord is now ensheathed by the cremaster muscle with a continuous suture of small catgut which offers some protection in its new superficial position. The cord is now dislocated from the canal and retracted to the Poupart's ligament side of the wound. The shelving margin of Poupart's ligament, including Gimbernat's ligament, is now exposed along with the crest of the pubic bone. The next and most important step of the operation consists in suturing the entire thickness of the abdominal wall in mass to Gimbernat's ligament and shelving margin of Poupart's ligament beneath the cord. The sutures are of interrupted No. 3 chromic catgut, four or five sutures being placed beneath the cord up to its emergence from the inguinal ring. Three similar sutures are placed above the emergence cord. The

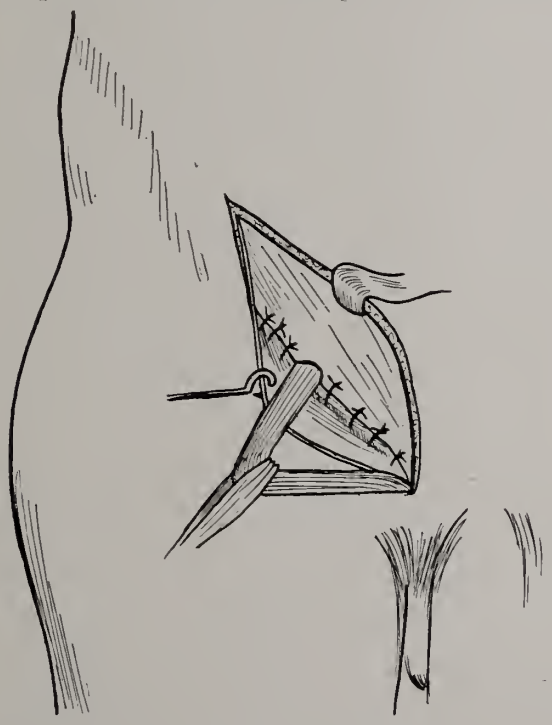


Fig. 4—First layer of sutures completed—showing fascia to fascia apposition.

first suture is started through the aponeurosis of the external oblique and passes through the entire thickness of the abdominal wall and emerges again at the outer border of the conjoined tendon. It is now continued upward and outward through the aponeurosis of the external oblique just about half an inch opposite the starting point on the same side of the wound. The suture is now completed by passing through the periosteum of the pubic bone and some of the fibers of Poupart's ligament. Four or five interrupted sutures are placed about half an inch apart in similar manner up to the emergence of the cord. Three similar sutures are placed above the cord. After these sutures are tied, it brings the entire thickness of the abdominal wall into apposition with the shelving margin of Poupart's ligament in a manner that will establish a fascia to fascia union instead of a muscle to fascia which commonly occurs. This leaves the cord completely transplanted and lying upon the anterior surface of the aponeurosis and external oblique. The reflected layer of the aponeurosis of the external oblique which

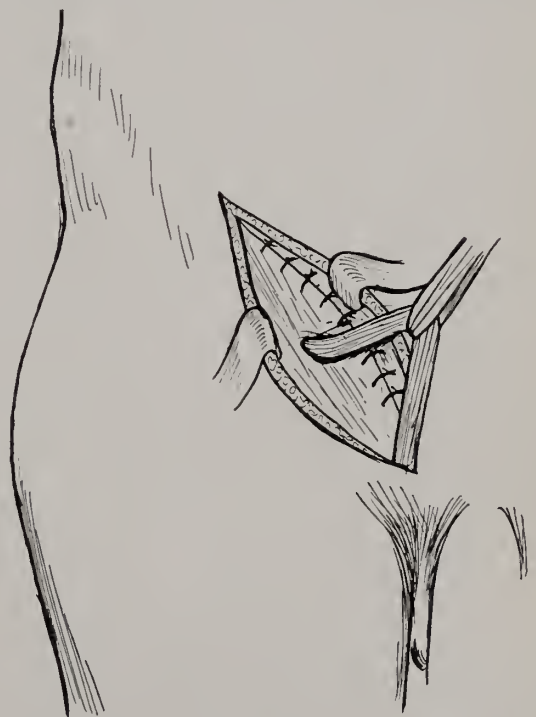


Fig. 5—Reflected portion of aponeurosis. Sutured beneath the cord. Cord shown lying on anterior surface aponeurosis with entire thickness of abdominal wall beneath it.

was turned outward when the cord was exposed is now turned toward the median line and sutured to the anterior surface of the aponeurosis of the external oblique by continued suture above the emergence of the cord. Below the exit of cord this layer is imbricated beneath the cord and again sewed by continu-

ous suture to the aponeurosis of this region. Thus we have reconstructed the inguinal canal in such a manner that we have placed the entire thickness of the abdominal wall beneath the cord and in doing so have created approximation of like structure. This fascia to fascia apposition will produce a firmer and stronger union than will result from a muscle to fascia union.

Out of a series of 67 hernia operations that have been done from one to two years we have had two recurrences. In 51 cases the modified Halsted operation was done and in 16 cases the Ferguson operation was done. Out of this number 11 were direct hernias and one double direct. One of the recurrences occurred in a man 58 years of age who had been operated upon for a large indirect inguinal hernia, the recurrence developing seven months following operation. This man began hard work immediately on returning to his farm from the hospital. In this case the cord was so short that a modified Halsted operation could not be done, hence the cord was not transplanted. The second recurrence occurred in an infant four and one-half months old who was operated for a large strangulated indirect hernia. This child took anesthesia very badly, in fact he came near dying on the table. In this case the strangulation was relieved and the inguinal canal rapidly closed without making any effort to repair the hernia. This recurrence developed a few weeks after the patient was discharged from the hospital. As far as I have been able to ascertain, not any of the 51 cases where the modified Halsted operation was done have recurred, although some of my friends might have repaired some of them for me.

PYELITIS OF PREGNANCY.*

By S. BEVERLY CARY, M. D., Roanoke, Virginia.

Pyelitis of pregnancy, or perhaps pyelitis in pregnancy, is more descriptive as the condition is probably often an acute exacerbation of a latent infection which was present previous to the pregnant state; however, this latent infection is not present in all cases.

Since interesting myself in this condition two years ago, it has been my privilege to observe and treat nineteen cases and it is these cases on which this paper is based. Fourteen of this number were carried through to the termination of pregnancy; of the five cases interrupted, only one prospective mother apparently suffered from an infection confined to the kidney pelvis alone. This patient required interruption of two of her pregnancies. Of the other three cases, one was interrupted on account of severe mental symptoms which were apparently independent of the pyelitis. One was complicated by a severe nephritis, while in the third it was discovered on a subsequent examination that the patient had quite a pronounced hydro-ureter with a moderate degree of pelvic dilatation.

The immediate etiological factor is bacterial as is the case in the uncomplicated pyelitis; however, the colon bacillus seems to be a more frequent offender in pyelitis of pregnancy. This has certainly been the predominating organism in my series of cases. The method of invasion may be hematogenous, lymphogenous, urogenous, or by direct extension. It is sometimes difficult to determine in a given case which route is the source of infection, but it may be said that the portal of entry is more often through the blood stream. The prominent predisposing cause in this type of case is the mechanical pressure of the gravid uterus compressing the ureter, especially as it passes over the pelvic brim. This compression interferes with the downward flow of urine, which in turn causes a degree of retention with stagnation in the kidney pelvis; this is certainly true in the well advanced pregnancies. In the earlier months some other explanation must be advanced; among the most logical are engorgement of the pelvic vessels which are so closely connected with the ureters. This in combination with the edema produced, especially if there is ureteral stricture, would obstruct the ureters to such an extent as to produce considerable retention. When the drainage from one or both kidneys has been interfered with by an obstruction, there is a stagnation of urine which offers a fertile field for infection. We are all familiar with the susceptibility of the bladder to infection in prostatic hypertrophy or to any condition which interferes with the complete emptying of the bladder. A large percentage of pyelitis of pregnancy, particularly the advanced, will show a residual when a ureteral catheter is introduced, the amount frequently reached 60 c.c. or more. Some degree of retention was detected in the right pelvis in all of the advanced cases in my series. In only one did we find a marked de-

*Read at the meeting of the Southwestern Virginia Medical Society in Radford, March 20-21, 1924.

gree of retention in both kidneys; in this case the residual amounted to more than 50 c.c. in each pelvis.

The right kidney is more often affected than the left. This is explained on the ground that the pregnant uterus has a tendency to tilt to the right, producing a compression of the ureter. The severe colicky pains so frequently complained of over the right kidney and ureter are due to obstruction to the flow of urine to the bladder. The frequency of pain on the right is so noticeable that it offers additional corroborative evidence to support the theory of a tilting uterus compressing the ureter. Sixteen cases in this series complained of pain only on the right, three complained of pain over both kidneys. while the third, which is the case with more than 50 c.c. residual in both pelvices, seemed to suffer equally over both kidneys. The most logical explanation for the bilateral retention in this case would be the possible disproportional relationship of the uterus to the surrounding structures, particularly the ureters which were apparently compressed.

With the exception of severe pain in most of these cases, the symptoms are much the same as in the uncomplicated pyelitis. In the very early cases there may be no symptoms and the condition only be discovered by urinalysis. In this connection it is well to emphasize the importance of making a routine microscopical as well as a chemical analysis of the urine in every pregnant case. This important examination is too frequently neglected even by those who have a microscope readily accessible.

We are all familiar with the classical symptoms of pyelitis. When any of these symptoms present themselves, a careful urinalysis, particularly a microscopic, should be carried out without delay; not only will the presence of pus give a clue to the true condition, but will at the same time help to dispel thoughts of appendicitis and gall-bladder, also puerperal sepsis when the onset of symptoms appears after delivery.

A diagnosis depends on the history and physical examination along with a microscopic examination of the urine. It must be borne in mind, however, that the presence of pus does not exclude appendicitis with which it is so often confused, but in pyelitis the pus cells are usually more numerous; the presence of chills is common while unusual in appendicitis. The fist percussion in pyelitis elicits a well marked pain over the kidney region posteriorly, which is a most important diagnostic sign. If fever alone is present, typhoid fever may be suspected and with pain a gall-bladder may be thought of. When the diagnosis is in doubt, a cystoscopy with ureteral catheterization should be carried out to clear up any uncertainty. Usually after the termination of pregnancy, either by abortion or at term, the symptoms automatically disappear. This, however, is not always true as was demonstrated in three of the cases in this series; two of this number developed symptoms of pyelitis about the end of gestation, but were carried on to termination of pregnancy under medicinal treatment and came under my observation several days after delivery with a high temperature and chills; the other case received pelvic lavages for several weeks with litttle improvement and the pregnancy was interrupted at six months. Although her condition greatly improved, it was necessary to continue the lavages at intervals of one to two weeks for a period of several months; the infection slowly responded to treatment, but unfortunately this woman became pregnant again just as the last of the pus cells were disappearing. She apparently took care of the infection well until the third month when chills and temperature started. She was then brought into the hospital and vigorous treatment instituted. The response was so slow that it was decided to interrupt the pregnancy three weeks after admittance.

Pyelitis of pregnancy is a serious complication and should receive energetic management immediately the diagnosis is made. The three outstanding methods of treatment are: First, general and medicinal; second, local; third, induction of labor. Surgical procedures, such as nephrotomy, are seldom indicated and will only be mentioned.

A certain percentage of pyelitis will in the late months respond to elevation of the foot of the bed; this position allows the uterus to fall back from the pelvic brim which in turn has a tendency to release the pressure on the ureters. When the right kidney only is affected, the patient should be encouraged to lie on the left side as much as possible so as to release the pressure on the ureter. Fluids should be forced and large doses of urotropin or alkaline medication instituted. It is difficult to say which is the most efficacious, as some respond better to urotropin while others do better

on alkaline treatment. Two cases in this series promptly improved under general management and were carried comfortably to term. Local treatment consists of ureteral catheterization, dilatation and kidney lavages. This is always carried out in conjunction with the general and medicinal treatment. Lavages of silver nitrate are given from five to seven day intervals, introducing at each sitting the largest catheter the ureter will permit, because by so doing we can produce a high degree of dilatation which promotes free drainage from the kidneys. The result of treatment in some of these cases is almost magic. We have frequently seen the most pronounced symptoms subside in a few hours after a single treatment. The number of treatments in the individual cases varies. It is not uncommon to see cases in which only one catheterization with lavage is required, while in others we have to be persistent and many treatments are carried out at intervals to keep down symptoms while the patient is being brought to term. Occasionally the pelvic residual urine defies any amount of dilatation; two such cases occurred in this series. Both of these cases came under observation at the fifth month of pregnancy. One had 60 c.c. retention in both kidneys and the other showed 50 c.c. retention in the right only, the left drained freely and was entirely free of infection. These patients were subjected to treatments as outlined, but did not show the slightest improvement. Both of these patients stood the ureteral catheterizations well and did not complain when the catheters were left in, but on the other hand commented on how much better they felt during that time. The temperature dropped to normal and all pain in the kidney region subsided. The reason for this improvement is, of course, obvious.

This continous drainage was kept up in both cases for six weeks before the pressure on the ureters was sufficiently released to permit free drainage. During this time the catheters were changed once a week; frequently they were blocked by an accumulation of pus and other debris, but this was easily overcome by a suction syringe or boric acid irrigation. Continuous drainage through ureteral catheters probably can not be carried out in all cases of obstinate retention, but should be patiently and persistently tried whenever this problem confronts us. This procedure is by far preferable to a nephrotomy for drainage or the interruption of pregnancy.

Induction of labor for the relief of pyelitis of pregnancy should be undertaken only after all conservative measures fail. However, in our enthusiasm to bring these cases to term we must not lose sight of the fact that we are dealing with two lives and, if decided improvement does not take place in a reasonable period of time or the mother is losing ground, the fetus should be sacrificed without undue delay. Interruption of pregnancy should be carried out particularly in those cases in which the pyelitis develops in the early months and persists in spite of all treatment. Even though the mother goes to term, she is taking a great risk with her life, or irreparable damage to the kidneys.

Surgical procedures should be discarded in favor of the simpler method of continuous drainage through the ureteral catheter. Perhaps in rare cases this continuous drainage can not be carried out on account of the lack of tolerance to the catheter. When this problem presents itself, particularly in the late months of pregnancy, a nephrotomy can be resorted to for the relief of retention. This operation is considered less serious and difficult than the interruption of pregnancy in the late months and at the same time saves the fetus.

In conclusion, let me again call attention to the importance of an early diagnosis which can be accurately determined if the condition is suspected. Once the diagnosis is made, all of the available methods of treatment should be faithfully and persistently carried out in the order outlined. In cases of pelvic retention it is far preferable to relieve the condition through the ureteral catheter than by the more radical surgical procedure of nephrotomy.

MacBain Building.

MALNUTRITION IN SCHOOL CHILDREN.*

By CHARLES E. CONRAD, M. D., Harrisonburg, Va.

The health and development of the adult are dependent to a large extent on the health and development of the child. Therefore, the question of malnutrition in school children is a very important and vital factor in the future of the race. This was amply shown in the examination of men during the recent war when it was found only about 50 per cent were fit for regular service. Statistics derived from examination of thousands of school chil-

*Read at the meeting of the Warren-Rappahannock-Page Counties Medical Society in Front Royal, Virginia, April 8, 1924.

dren from various sections of the United States show that 50 per cent are underweight and 33 1/3 per cent are suffering from malnutrition: that is, they are more than 7 per cent underweight.

I would not be understood as saying all diseases of adult life result from malnutrition, but I am convinced that the physical basis for much of the inefficiency, as well as actual illness and death from diseases of adult life, have their foundation in the malnutrition of infancy and childhood. It should be drilled into the minds of laymen and some physicians also that properly nourished individuals rarely develop tuberculosis, pellagra, or similar diseases.

In working with malnutrition in school children, I have largely followed the plan of Dr. Emerson of Boston, so will give what he considers the five chief causes of malnutrition.

1. Physical defects, especially nasopharyngeal obstruction.
2. Lack of home control.
3. Over-fatigue.
4. Improper diet and faulty food habits.
5. Faulty health habits.

Now, the requisites for good health in the growing child are few: good air, simple food, rest, and proper exercise.

If the causes of malnutrition are removed and these simple requisites for growth obtained, we have what may be called the essentials of health.

These essentials are:

1. The removal of physical defects.
2. Sufficient home control to insure good food and health habits.
3. The prevention of over-fatigue.
4. Proper food at regular and sufficiently frequent intervals.
5. Fresh air by day and by night.

These undernourished children have soft and flabby musculature and are irritable and peevish. Either they tire easily, or are of the nervous type constantly on the go, being overstimulated and not realizing they are tired: as a consequence they do not rest well at night thereby fixing the ground-work for future trouble. The most striking symptoms noted among the mal-nourished children are: lack of energy; inattention; poor memory; slow comprehension; unusual restlessness.

In approaching this problem, we must go into details thoroughly. First, a careful family and personal history as to congenital syphilis, tuberculosis in the home, as to birth injury or premature birth and previous disease. Next, the food and health habits, as to whether they drink coffee or tea, how much milk do they drink a day, how much candy and how many ice cream cones a day, what hours do they have for rest, that is, what time do they go to bed and what time do they get up, do they rest during the day, do they jump rope or spend much time on roller skates, and how much work do they have to do at home after or before school.

Also, a very important question: Will the parents co-operate? And this is the hardest problem with which we have had to deal.

After this, then a complete physical examination of the child should be made and carefully recorded. If any physical defects are found, they should be corrected, so the child is made fit to gain. One is often struck with the poorly nourished body under the clothes when the child has a fairly round face. No examination of one of these children is of value unless the clothes are removed to the waist. Then you see the picture of a serious expression on the face, lines under the eyes, flabby muscles, fatigue posture, round shoulders, chest flat or pointed, abdomen prominent, often flat feet; with these, often enlarged tonsils and adenoids, and in girls, if the urine is examined, often a pyelitis is found.

A record of all the child's activities and occupations for two consecutive days, with a detailed list of all food taken during the same period, is the best approach to a thorough understanding of the social causes of malnutrition. See to their food habits, as to time spent at meals, and does the child select only a few articles of diet. Then we look into their health habits, as time in open air; are they disturbed at night by older people coming into room and turning on light. Then we sum up our knowledge and advise what to do. First, try to remove any physical defects. Make as few changes in daily life as possible to obtain results and get co-operation of child and parents.

As a general rule, the following rules will apply:

Ten hours' rest in bed at night, with a rest period of one-half to one hour, morning and afternoon. The rest period increases the child's power of food assimilation. Give cereal twice a day, orange each morning between breakfast and dinner, glass of milk,

with three graham crackers at three each afternoon—a general diet including milk, cereals, green vegetables, and fruits.

Amongst the faults, we find fatigue interferes with absorption.

The chief errors of diet are: Omission of cereal and milk, irregular meals, use of tea and coffee, sweets between meals, and insufficient 24-hour amount of food.

Lack of appetite may be due to being tired, "want to go and play," tea and coffee, tobacco, and eating sweets between meals. When the appetite is poor for breakfast, it is due often to poor air at night or nasopharyngeal trouble, with mucous discharge from nose. Examples of bad food habits are: Eating at all hours rather than at regular hours; eating trash and sweets between meals, rapid eating with little mastication of food.

Faulty hygiene includes over-crowding, lack of fresh air, late hours; over-activity in the form of work or sometimes in play consumes so much of the energy value of the food that little or none is left for growth.

By the best figures obtainable, there are eight to ten million children in the United States belonging in the group of malnutrition. In four-fifths, probably this is a remediable condition, and there is no reason for its continuance except ignorance and indifference.

Athletics in schools often are carried to the extent of over-exertion or fatigue and in that way do harm, losing the beneficial effect obtained where correctly supervised.

To summarize:

Get as complete history as possible, as often it is some apparent trifle that will turn things. For example: I had poor results with one child until I found out about her using roller skates. These were taken away, and she began to gain at once. Another child had been going to a restaurant and getting a bowl of soup for lunch. I substituted sandwiches of peanut butter, butter and lettuce, with continuous gain in weight since.

Have a talk with the child in presence of either one or if possible both parents, and explain what you wish to do and that without co-operation success will not be obtained. We have had two nutritional classes in two of the schools in Harrisonburg this winter, and the most difficult problem we have had to deal with was to get the co-operation of the parents to get them to carry out the rest periods and lunches at home. They say the child does not want to do this or that, and they cannot make them. While not altogether a nutritional problem, the way children boss parents at the present day is a serious affair.

It is necessary, as I have said, to make a complete physical examination and have any physical defects removed. Have weight charted regularly each week. Have a line showing normal weight for height and normal line of growth, then start with their weight and each week show by line their gain or loss. Occasionally have child bring in a record of just what he has eaten for 48 hours, also 48 hour list of rest and activities.

See that they have mid-morning and mid-afternoon rest and lunch periods. In case this cannot be arranged at school, have them take mid-morning lunch, or, as we have done, eat an orange each morning, then take milk and graham crackers and rest period immediately after school. In nutritional work, all details must be looked after and carried out. Different lines will often have to be followed to find out just what is the trouble in the individual case.

Much must be done in an educational way to advance this work and let the people see that trying to get a child 10 per cent to 20 per cent underweight up to normal is not a fad but a serious problem of a sad reality which exits in our country.

The schools must also help in this problem, and some plan will have to be worked out by which these extremely malnourished children can have rest. Often these children have been called lazy, kept in after school, and added lessons placed on them when the trouble was the child was fatigued and the more burdens placed on him the worse his condition. Why the fatigue posture? Simply because the body has not sufficient weight to sustain its height. As I read in an article by Dr. Holt, it is the work of the physician to initiate such a program; school authorities will have to carry it out, and it can only succeed when backed by an intelligent public opinion.

MALNUTRITION AND MARASMUS IN INFANTS.*

By JOHN S. WEITZEL, M. D., Richmond, Va.

This paper, the subject of which is "Malnutrition and Marasmus in Infants," covers two conditions most important in their nature, often

*Read by invitation before the Warren-Rappahannock-Page Counties Medical Society at Front Royal, Va., April 8, 1924.

thought of as one, with the degree of development being the deciding point. They vary, however, in certain features and, in order to discuss both satisfactorily, we will apply our discussion to each separately, beginning with "Malnutrition in Infants."

Malnutrition in Infants

By the general term malnutrition we may cover all the secondary atrophies and instances of failure to gain in weight, independent of whether the causes are organic or functional, reserving the title, "Infantile Atrophy" or "Marasmus," for the severe cases with the etiology and symptomatology described later.

Etiology of Malnutrition.—

1. A constitutional debility of the infant.
2. Premature birth.
3. Children of excessively nervous development.
4. Constitutional diseases of the parents.
5. Any chronic disease of the infant.
6. Acute digestive disorders in early infancy.
7. Continuous improper or insufficient diet.
8. Bad hygienic conditions.
9. Neglect.
10. Ignorance.

Symptoms.—As the name denotes, the symptoms of malnutrition are those of imperfect nutritional development. In infants the growth of the body in weight and often in length is much below normal.

The strength is poor, muscles flabby.

Failure of the infant to sit and stand at the required age.

Frequent digestive disorders.

Rickets.

Feeble digestive and assimilative powers.

Prognosis.—The danger from malnutrition is much the greatest in young infants. The older they grow the better the prognosis.

Treatment.—The treatment depends naturally upon the cause.

If the cause be dietetic, the error in this particular should be corrected.

If bottle fed, the proper caloric requirements should be offered.

A food high in proteid and low in fat is most efficacious.

If breast fed, care should be taken in calculating just how much milk the infant nurses at each feeding; frequently the breast milk must be fed from a dropper, bottle or by lavage.

Hygienic details is the next important factor in the condition of malnutrition. Proper air space is necessary for each infant. Regular out-door airing and in-door airing in inclement weather are essential, care being taken always to avoid exposure..

The maintenance of animal heat is very important and a normal or near normal temperature should be maintained by the application and removal of external heat.

As mentioned under marasmus, these malnourished infants, who become dehydrated on account of diarrhea or vomiting, should receive regular intraperitoneal injections of normal saline after which their metabolism frequently becomes greatly improved. A regular routine should be strictly adhered to regarding the time and interval of feeding, bath, bowel movements and sleep, this routine being the same each day.

Ferrous carbonate in malnutrition, as in marasmus, proves of benefit in helping to overcome the anemia which is almost invariably an associated condition.

The administration of cod liver oil in malnutrition is usually well borne by the stomach and an increase in weight noted rather promptly while in marasmus the stomach seldom tolerates the heavy oil due to the poor fat capacity in this condition.

Marasmus

Definition.—Marasmus is a *term* used to describe a condition in which the infant is taking a sufficient amount of food of adequate quality for growth and development, yet without obvious cause it remains stationary or even loses in weight.

If an effective cause for this condition can be assigned, or an infection demonstrated, or an inability detected to deal with some special constituent of the diet, the disorder ceases to be classified as marasmus.

This title, probably first employed by Soranio in the sixteenth century, denotes a progressive and finally extreme wasting of the infant without other symptoms or discoverable anatomical lesion to account for it. The term "athrepsia" was applied to it by Parrott. From this primary atrophy must be distinguished all cases of secondary atrophy, the result of malnutrition dependent upon starvation, congenital syphilis, tuberculosis, or evident chronic disorders of the gastro-enteric tract. This leaves the term infantile atrophy

certainly useful, since the condition is common, but unsatisfactory, since many cases so designated are undoubtedly due to positive but unrecognized anatomical causes.

Finkelstein has applied the term "decomposition" to those cases in which the lack of power of digestion and assimilation finally reaches a point at which the infant fails to gain no matter what the diet may be. Whatever the cause of infantile atrophy may be, it is evident that the condition, like icterus, is a symptom rather than a disease.

Etiology.—The following causes might be briefly mentioned:

1. Defective intestinal assimilation.
2. Little or no proteid assimilation.
3. Poor fat capacity and usually a diminished sugar capacity: as a result the proteids of the tissues are drawn upon to supply heat and energy with resulting progressive emaciation.
4. *Maintenance of animal heat.*
5. *Hidden infections.*
6. A congenital weakness of constitution which may depend upon heredity.
7. Premature birth.
8. Hygienic surroundings.
9. Neglect.
10. Ignorance in regard to proper feeding.
11. Inability to procure clean, pure, cow's milk.
12. Prolonged hospital or institutional care.
13. The absence from the food of some factor not yet recognized.

Given an infant with inherited constitutional weakness, improper proportion in food elements, and poor hygienic surroundings, we have the three most important factors to produce *marasmus* in its most marked form.

Pathology.—There appears to be no lesion or set of lesions peculiar to infantile atrophy. Upon autopsy we find usually a strip of hypostatic pneumonia or an area of atelectasis, a fatty liver or one showing fatty areas also, pallor of spleen, kidneys and heart. The stomach and intestines contain thick, sticky mucus.

The blood sometimes shows a pyogenic coccus, otitis may be present, multiple furunculosis or broncho-pneumonia may accompany this condition.

Atrophy of the intestinal tubules has found very little support which can readily be disproved by the fact that the intestinal tubules begin to function when assimilation is established to a point of perfect digestion at which point the infant begins to gain in weight. The disorder is seen chiefly in infants under one year of age. Prolonged hospital or institutional care predisposes to this condition when the term "hospitalism" has often been well applied.

A previous gastro-enteric affection usually precedes it; some authorities claim an infection of unknown nature, of which there is no proof offered. Baginsky assumed an anatomical basis, the lesion being a destructive change in Lieberkuhn's follicles, but this has not been confirmed by most investigators.

The necessity for the presence of human milk ferments is disregarded from the fact that infants with this condition thrive when they are entirely artificially fed. The prevailing view makes primary infantile atrophy a defect in the physiological processes of the organism, as a result of which the infant cannot utilize the food given; this depends either upon disturbance of the intestinal secretions, including ferments, or upon faulty metabolism, causing a loss of power of assimilation in the tissues themselves.

A further cause, often of importance, is the presence of a constitutional debility, whether due to prematurity or to ill health of the parents.

Loss of body fluids by diarrhea often accompanies digestive upsets in infants and that is a desiccation of the blood tissue. The degree of this condition can be determined by the percentage of proteins in the blood. The blood stream is not only smaller in volume but poorer in quality. When the percentage drops below normal, and even as low as 4.5 per cent, it is called *marasmus.*

Symptoms.—In a case possessed of the three important factors just mentioned, we see as a result progressive loss in weight, feeble circulation, imperfect lung expansion, subnormal temperature, finally a condition incompatible with life.

The vast majority of cases usually give a history of having a normal birth with a *normal* weight. The baby continues to do well until the fourth to sixth week when for some reason the infant must either be taken from the breast or the breast milk supply fails, at any event the baby is put upon an artificial feeding. At this point the infant fails to thrive and numerous changes in the formula are made with no success and we have brought to us a baby almost wasted to a skeleton. This picture is

characteristic, for in marked cases they all have an old look, wrinkled skin, which is dry and inelastic, a very prominent abdomen, sunken fontanel, sunken eyes and skinny, pointed fingers, a bluish pale and pinched appearance which may be accompanied by an accidental heart murmur and a subnormal temperature. Associated with this condition one frequently notes an anemia of marked degree and occasionally one meets with an edema of varying degree which does not involve the serous cavities. I have noted this very frequently where barley water or broth was given. Holt, however, lays no more importance to barley water than to other causes, the most important of which is the retention of chlorides. Upon the disappearance of the edema the chlorides appear in the urine. Albumin and casts rarely appear.

The stools usually contain undigested food with mucus and some green. Vomiting is readily excited. The appetite usually is rather poor but, upon coaxing, they frequently take the entire feeding; it is not unusual, however, for infants of this type to be ravenous, take every drop of a well balanced high caloric feeding and steadily lose weight.

Complications and Sequelae. — Frequent complications are *thrush* and *bed sores* upon the occiput, or heels.

A *reflex spasm* of the neck muscles gives a picture of marked opisthotonos which lasts from several days to several weeks.

Frequently these infants take on some infection particularly of the respiratory tract, *broncho-pneumonia* being a rather common termination.

Furunculosis, otitis media, marked secondary anemia, a peculiar rigidity of the musculature, especially of the lower extremities, also keratomalacia with perforation of the cornea, may accompany or follow marasmus. Petechia occasionally appear on the abdomen.

Prognosis.—In infants from four to six months, the condition gradually progresses, and the infant seems to wither away slowly to a fatal termination unless cut short by some acute infection; over eight months, the outlook is more favorable and, after the first year, one might feel reasonably sure of a recovery, and at the age of two or three years we may find a vigorous, healthy child.

Diagnosis.—A differential diagnosis must be made if possible between primary and secondary atrophy, the latter being dependent upon starvation, tuberculosis or other causes. This is at times most difficult. Tuberculosis may become evident only at autopsy, however the X-ray, von Pirquet test or some localized symptoms may indicate tuberculosis.

A coincidence of the date of the commencement of failing health with that of weaning or some other change of diet suggests marasmus. A rapid improvement, following *proper* diet differentiates starvation from marasmus.

Treatment.—With regard to prophylaxis, maternal nursing should be encouraged by every possible means, and a weekly weight of the infant made and recorded, with a complementary feeding inaugurated at the first evidence of a failure to gain. This complementary feeding should consist of a clean cow's milk mixture, properly balanced to meet the caloric requirements and the individual needs, attention being given to minute details in administering the food, and an abundance of fresh air and sunshine. A careful observation of the weight curve should be made that additional food might be added before a marked loss in weight has occurred.

A wet nurse is undoubtedly the safest procedure under four months and, if this is impossible, breast milk augmented with diluted cow's milk forms the next preference; where both are impossible, a modified milk formula alone must be resorted to. This, of course, varies according to the individual infant. Care should be exercised, however, not to select a food high in fats or sugars, and low in proteid. On the contrary, a food low in fat and high in proteid and sugar is preferable.

An abundance of fresh air and sunshine is, of course, an important factor in the prophylaxis of this disease. In hospitals and institutions 1,000 cubic feet of air space is necessary under one year to offer the infant the proper air supply.

In the treatment of marasmus, I wish only to mention the administration of substances known to contain vitamins in abundance which have failed to show any appreciable results. The administration of small doses of thyroid substance has recently proved of considerable service in these cases. Iron in the form of ferrous carbonate has seemed to give marked results where secondary anemia was prominent.

The maintenance of animal heat is most important and to accomplish this the infant's temperature should be taken and recorded every four hours and external heat applied and re-

moved as necessary to keep the temperature as near normal as possible. The room temperature should be kept around 80° F. with gentle ventilation and as few visitors as possible, with extreme care as to nursing, bathing, changing napkins, olive oil rubs, change of position, scrupulous cleanliness regarding bottles, nipples, etc.

In those cases of marasmus that persist in having frequent loose stools and frequent vomiting and also in cases which appear markedly dehydrated, the frequent injection of normal saline by the intraperitoneal route usually proves of great value. In administering this treatment I might mention a few points with regard to the technique. The site of injection is about one inch below the umbilicus in the linea alba, care being taken that the bladder is not distended; the skin is rendered sterile by applying tincture of iodine, and a blunt pointed needle, preferably a spinal puncture needle is introduced first through the skin and subcutaneous tissue and then by a sudden short plunge through the peritoneum. The obturator is then removed and the warm normal saline allowed to flow slowly into the peritoneal cavity by gravity. A variable amount of saline is given, usually about 15 c.c. per kilo body weight, or a total of from 75 to 150 c.c., according to the weight of the child and the amount of dehydration.

Injected fluid passes to the tissues and is not retained in the blood; therefore, enough saline must be given to reduce the blood concentration and enough to cause sufficient secretion of urine to relieve the blood of excess waste products. After the point of normal concentration of the blood is reached, further fluid is harmful.

The first intraperitoneal injection may be followed by a 15 per cent dextrose solution intravenously, about 4 c.c. per kilo body weight being usually given. This abstracts the fluid from the tissues and hastens the fluid into the blood stream. Occasionally one intraperitoneal injection may be sufficient though it is frequently necessary to repeat this procedure several times at an interval of two or three days.

Replacing the deficiency in the blood stream by transfusion from a suitable donor frequently leads the patient to rapid recovery, but the underlying cause must be removed. The normal blood volume most be restored before any improvement in the condition can take place. There is a long period of repair while the blood volume is being built up and there will be no noticeable gain in weight. Food of a sufficient caloric value to supply the body needs is required. If the child is fed a sweet milk mixture that is the proper dilution for its age, its gastric mucous membrane is not able to secrete sufficient hydrochloric acid to produce the optimum hydrogen ion concentration for the action of the gastric enzyme rennet to be complete.

The pyloric stimulation is faulty. As a consequence there is poor assimilation of food and the child lives on its own tissue and wastes away. In the digestion of cow's milk, more acid or alkali is required to change the chemical reaction than for breast milk. The feeding of breast milk is therefore the most rational treatment, but is very difficult to obtain and sometimes is of questionable origin. Some form of cow's milk mixture is then a substitute. Lactic acid milk is one that has previously been sterilized by boiling or pasteurizing and is then inoculated with a culture of lactic acid bacillus and allowed to stand at a room temperature for twelve to twenty-four hours producing lactic acid from the carbohydrate in the milk. In its use the infant's gastric mucous membrane is called upon to produce less acid to secure the optimum hydrogen ion concentration than in the use of other milk mixtures.

Marriott finds that the proper basis for estimation of the caloric requirements of a marantic patient is estimated from the normal average weight for the age rather than the actual weight.

Lactic acid milk can be fed to the infant undiluted, even to very young infants. Ordinary sugars can be used in combination with lactic acid milk also dextri-maltose and corn syrup, thus greatly increasing its caloric value. The use of evaporated milk properly diluted and prepared by the addition of imperial granum and dextri-maltose, cooked for thirty minutes, supplies a food low in fat and high in carbohydrate which is easily digested and assimilated.

In estimating the caloric requirements for these athreptic infants, 60 to 65 calories per pound gives us approximately the same deductions as Marriott's view of estimating from the normal average weight for the age and our amounts of evaporated milk cereal and sugar can be estimated accordingly, care being taken

to start these infants with low digestive capacity with a formula lower than their caloric requirements and gradually increase according to their tolerance.

In diluting cow's milk to approach the percentage of fats, carbohydrate, proteid and mineral salts found in woman's milk, one must necessarily dilute the water soluble B vitamin which is most essential to protect the individual from this "deficiency disease." Vitamin may be added to the infant's diet in the form of vegetable soup, cereal diluents, or orange juice, when a skimmed or boiled milk mixture is necessary.

Eddy has brought about marked improvement and ultimate recovery in a great number of infants of the marantic type by increasing the vitamin B content of their food. This was obtained from the pancreas of sheep, wheat embryo, and especially prepared vegetable soup. Hess has found that yeast stimulated growth when added to milk. Perry used compressed yeast cake on twelve marantic babies, with improvement in only one.

The administration of bile salts in cases of marasmus following intestinal infections have been found by Kerby, London, to be of great benefit. These cases showed marasmus without other physical signs. One-fourth grain of mixed sodium glycocholate and taurocholate for infants three months old was the average dose administered. The actual gain was greater than a mere increase in weight.

In conclusion I wish to emphasize the importance of a constant weekly weighing of the baby by all mothers and a report made to her attending physician at the first evidence of a failure to gain in weight. After this either improved breast milk from the mother, additional breast milk from a wet nurse, or rational complementary bottle feeding should be inaugurated at once. This step I feel will prevent 50 per cent of malnutrition in infants and with correction of the constitutional diseases in the mother or infant or both, will prevent a possible 25 per cent additional cases, leaving a remaining 25 per cent which will fall into the difficult feeding class and form the typical athreptic infant. With this type of infant at our disposal, I would suggest the immediate feeding of either lactic acid milk or the evaporated milk mixture, before mentioned, with the transfusion of blood or intraperitoneal treatment as a reserve, aided by the administration of an easily assimilated iron. This procedure applied we may hope to diminish the mortality of infants from this much dreaded and almost universally fatal disease.

1900 *Grove Avenue.*

BACKACHE.*

By ROY M. HOOVER, M. D., Roanoke, Va.

Backache is a condition with which every physician is all too familiar. The causes are so varied, and the pathology in many cases so obscure, that they often go without treatment, or with improper treatment. These cases are one of the most fruitful sources of revenue to the patent medicine vendors and advertising quacks of all sorts. Thus the recognition and proper treatment of these conditions will aid materially in the solution of the nostrum and chiropractor problems.

Most cases of backache fall into one or more of five rather definite classes, which, however, overlap:

1. Those of pelvic origin.
2. Those due to disease of the spine, such as Pott's disease, arthritis, etc.
3. Those due to injury, as fractures, fracture dislocations, etc.
4. Those due to congenital abnormalities of the spine.
5. Those due to defective balance, from slight scoliosis, visceroptosis, muscle bound feet, flat feet, spondylolisthesis, etc.

A complete discussion of backache would have to include all the causes, local or distant, and would far exceed the limits of this paper. The present discussion will be limited to certain cases of backache caused by injury to the spine, and those due to congenital abnormalities, with the consequent mechanical problems, disregarding those due to outside pathology, and those due to disease of the spine. Sacroiliac strain and relaxation are purposely left out of the discussion, as their occurrence and possible significance is quite a debatable question.

The clinical picture of the cases under discussion is fairly constant, with minor variations. The patient complains of pain, usually of aching character, with occasional lancinating pains, usually in the midline, but sometimes unilateral or bilateral. Because the condition is most frequent in the low spine, pain is usually present in this region. The pain frequently radiates into one or both buttocks,

*Read at the meeting of the Southwestern Virginia Medical Society in Radford, March 20-21, 1924.

or down one or both legs, giving the symptom-complex of sciatica. The pain may be constant or intermittent, and frequently some posture has been found to relieve the discomfort. Pain is consistently increased after exertion, and is usually more or less relieved by rest in bed. There is more or less limitation of motion and muscle spasm. Pain is usually caused by flexion or hyperextension. Other symptoms and signs are inconstant. In the traumatic cases there is usually history of a more or less severe injury.

The lumbo-sacral region is potentially the weakest part of the spinal column. Being the juncture of the movable and the fixed portion of the spine, it is subject to much greater strain and more motion than any other region. The lumbo-sacral articulations lie anterior to the center of gravity of the body, which is compensated for by the lumbar lordosis. There is, however, always an anterior shearing tendency of the fifth lumbar on the sacrum. Due to these mechanical factors the lumbar and lumbo-sacral regions are more frequently affected than any other portion of the spine.

This region also seems to be particularly prone to congenital abnormalities. These in general represent arrested development, or misdirected development. This is shown by the normal structures remaining incomplete, bone development may have been excessive so as to fuse or partially fuse together structures not normally united, or there may be a disproportion in size between parts of the vertebra, with consequent abnormal relations.

It is a debatable question whether any considerable degree of displacement can occur in the vertebral joints without a fracture or disintegration of the lateral articulations. It is also debatable whether in cases where the lumbo-sacral angle is markedly decreased, mere mechanical pull may not cause pain, and explain certain cases of obscure back pain. The fact that not a few cases in which this is the only demonstrable pathology are entirely relieved by correcting this mechanism, seems to point to this fact.

Fracture or fracture dislocation of the lumbo-sacral spine may arise from severe, or sometimes apparently trivial injuries. Such injuries as slipping on the ice and falling in a sitting posture, lifting a fairly heavy weight, stepping down a single step unexpectedly, and sudden muscular effort, as kicking, in a football player, may be the only history of trauma. In a majority of such cases where the trauma is slight and apparently inadequate, there is present a congenital abnormality with a consequent point of weakness. Especially where the injury occurs during childhood, pain may not arise until adult life when ossification is complete, frequently many years after the injury, when the spine can no longer accommodate to the abnormal relations.

There may be fracture of any part of the vertebra, or any combination; the body may be crushed; the pedicles may, one or both, be fractured; the lateral articular processes or the laminae may be broken. In quite a number of cases, even after a long period, the fracture is found to be ununited, probably due to the interposition of the torn ligaments and other soft parts which are so closely attached to the vertebra.

Because of the shape and location of the vertebra, it is extremely difficult to obtain X-rays that will give accurate and complete knowledge of a fracture or congenital abnormality. However, in most cases of this type the X-ray findings, coupled with the symptoms and signs, are definite enough to warrant a diagnosis. It should be stated that in many cases much more involvement is found at operation than was located pre-operatively. Lateral and stereoscopic X-rays are of special value. The difficulty of diagnosis is shown by the fact that so many of these cases go for years without a recognition of the condition, many having a diagnosis of neurasthenia, neurosis or hysteria, until finally the real pathology is located.

The problem of diagnosis becomes increasingly difficult in industrial cases, such as mine or railway injuries, where a question of compensation or damages comes in. It takes most careful study on the one hand not to do an injured man an injustice and deprive him of both compensation and the treatment which will restore him to normal, and on the other hand not to assist a malingerer in obtaining undeserved compensation for a non-existing injury. For these reasons, such cases should have the most thorough and complete examination, so that a correct diagnosis may be arrived at.

In all the cases, whether due to congenital abnormalities or injuries, pain seems to be due to abnormal motion or undue strain on soft parts, whether in an ununited fracture, abnormal joint, or between bone surfaces not normally in contact. The treatment, therefore, looks toward these two things. Abnormal mo-

tion may be attacked in one of two ways: either restore relations to normal, or eliminate motion. Abnormal strain on soft parts is attacked in the same manner; either by restoring relations to normal sufficiently to relieve the strain, or so change the mechanism that the strain comes on bone and not on soft parts.

In selected cases some men have obtained excellent results by manipulation of the spine, with or without an anesthetic, in an attempt to restore normal relations. This, however, should not be done until a clear conception of the pathology has been obtained by X-ray and examination. Otherwise, we emulate the example of the chiropractor and osteopath. Where the restoration of these relations to normal is out of the question, the logical treatment is immobilization. Complete elimination of motion in the spine cannot be accomplished by braces or plaster casts, for it is easily demonstrated that motion occurs in the vertebral articulations with every respiration. However, in certain cases, especially those in the dorsal regions, a brace or plaster cast may give sufficient immobilization to almost or entirely relieve the symptoms as long as the apparatus is worn.

The one treatment which gives uniformly good results in relieving the symptoms, because it absolutely eliminates motion, is operation fusing the affected vertebrae together. The operation of choice is the Hibbs' spine fusion, though a well performed tibial bone graft will also give the same results. Briefly, the former operation after exposing the entire posterior aspect of the affected vertebra from lateral articulation to lateral articulation, makes raw bone contact between the adjacent vertebrae throughout this extent. In the latter operation a strip of bone from the tibia is grafted in the spinous processes. Each gives bony union between the vertebrae; the former over the entire posterior aspect, the latter in the line of the spinous processes.

In conclusion, the spine, and especially the lumbo-sacral spine, is quite subject to injuries and also to congenital abnormalities. These may cause backache of a rather definite type. Congenital abnormalities weaken the mechanism and predispose to fracture. The pain appears to be due to abnormal motion or undue strain on soft parts, and the two possibilities of cure are by restoring normal relations, or by immobilization, preferably by fusing the affected vertebrae together.

Anchor Building.

References.

Lovett, J. A. M. A. Vol. LXII., 1914, pp. 1615-1620.
Hibbs, Arch. of Surgery, May, 1922.

REPORT OF A CASE OF MASTOIDITIS, EPIDURAL ABSCESS WITH APPARENTLY NO MIDDLE EAR INVOLVEMENT.

By JAMES ERWIN DIEHL, M. D., Norfolk, Va.

J. A., colored man, age 41, occupation pile driver. No history of head injury, scalp infection or enlarged glands about head or neck; has always enjoyed good health and has not lost a day's work on account of illness. Personal history as obtained from the patient has no past connection with the present illness. From adolescence he has done laborious work and accumulated money sufficient to buy a home; habits are good, venereal infection denied.

Present illness.—In the latter part of April, 1923, he was taken with a head cold, but he did not pay much attention to the condition, thinking that he would be all right in a few days. He continued at his work without any special discomfort in any way except that his head felt full, being more noticeable on the right side of the head. There was no pain in the ear nor was there a discharge at any time. On June the 20th he consulted me about a peculiar sensation on the right side of the head and face with a stuffiness and fulness in and about the right ear and he thought there might be wax in the ear. Examination of the external auditory canal was negative, the drum slightly retracted with a moderate amount of redness on the upper edge; he could hear a watch tick at twelve inches. Catheterization of the eustachian tube did not reveal any abnormality. The findings in the left ear were practically the same as in the right. Nasal cavities were negative; mouth negative with the exception of a few decayed teeth and a slight redness of the posterior pharyngeal wall, especially adjoining the posterior tonsillar pillars. There was no swelling nor tenderness back of the ear. Vision in both eyes was normal. Both fundi were negative, temperature 99°, pulse and respiration normal. A blood Wassermann and malaria tests were found negative. With apparently negative findings I did not advise any treatment except argyrol twenty-five per cent, dropped into both nostrils morning and evening.

I did not see nor hear from the patient again until July 12th when I was called in by the family physician. The patient was in bed complaining of severe pain behind the right ear; it was very sensitive to touch and the scalp was slightly swollen about two and one-half inches posterior to the external auditory canal and on the upper level of same. The external auditory canal and the drum were negative; he could hear watch tick at twelve inches. Nose and throat examination were negative. Temperature 102°, pulse 80, and respiration 16 per minute. His expression was that of fear and anxiety and his general appearance that of toxicity and exhaustion. He appeared to have lost a great deal of weight. The picture depicted to me was that of a seriously ill individual and the exact nature of the illness was somewhat of a puzzle to me. The patient was X-rayed on July 12th by Dr. Alpheus Fields who reports the findings as follows: Cloudy right mastoid; apparently destruction of the entire cells; a dark shadow about the size of a five cent piece lying adjacent and posterior to the mastoid cells apparently not in direct contact or communication with them (see illustrations Nos. 1 and 2). The left mastoid was negative. With this information at hand I began to feel more sure of the diagnosis.

Fig. 1—Right mastoid.

The patient was admitted to Saint Vincent's Hospital on July 13th. Weight on admission 130 lbs., temperature, pulse and respiration were normal. Blood count 25,000, polys seventy-eight per cent, large lymphocytes three per cent, small lymphocytes seventeen per cent, hemoglobin seventy per cent. Eye grounds negative; urinalysis negative.

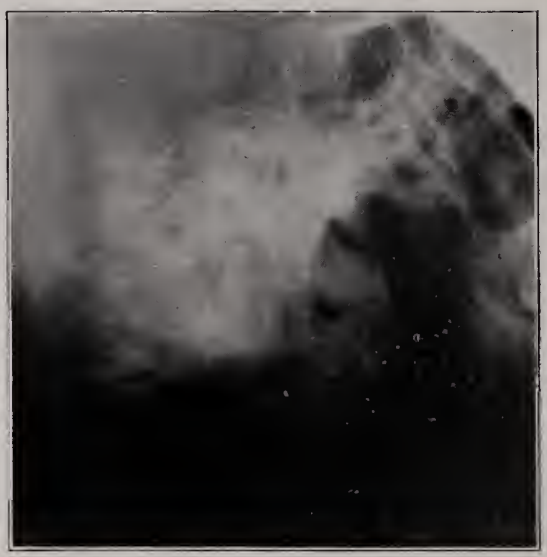


Fig. 2—Left mastoid.

July 14th, *operation and findings*: The usual mastoid incision was made; the tissues of the scalp were very little thickened and the blood vascular congestion not much increased. The periosteum was a little more than usually adherent to the bone and was elevated with some difficulty and bled rather freely. The bony cortex was removed and the mastoid region inspected. There was a complete destruction of the cells and the mastoid cavity and the aditus ad antrum were filled with broken down material and jelly-like substance. There was no exposure of the dura at any place. The aditus ad antrum was curetted and a probe was passed into the middle ear without any difficulty. Having completed the mastoid operation and not locating pus in the mastoid cells as I had expected from the high leucocytosis, I made an incision at right angle to the mastoid incision (Whiting) and carried it back about two inches. At the distal end of the incision the scalp tissues were thick and very hemorrhagic, the bleeding was very free from the scalp and also from the bony cortex and rather dark color. After having all bleeding under control I began to remove the bony cortex posterior and adjacent to the mastoid region when I discovered thick yellow pus exuding. A thin probe was introduced into a small opening within the layers of the bony cortex where the pus exuded which led into an abscess that was lying

between the bony cortex and dura and partly overriding the lateral sinus. The bony cortex, about one-half inch in diameter immediately overlying the abscess, was removed and about two drachms of thick yellow pus was removed. A culture was taken from the pus and a pure growth of pneumococci was grown. A rubber drain was placed in the abscess cavity and a small amount of packing was placed in the mastoid wound and several sutures were used. The tympanic membrane was incised and no pus was found nor was there any subsequent drainage via external auditory canal. The patient made an uneventful recovery and was discharged from the hospital July 21st. When seen last on August 31st the wound was completely healed and the patient had gained most of his normal weight and was feeling normal.

Conclusion: It would be presumptuous on my part to say that there was no involvement of the middle ear during the course of the illness, especially so if the case was not constantly under my supervision; I feel confident, however, that there was no involvement of the middle ear during the beginning and the latter part of the illness in so far as the clinical examinations determined.

614 *New Monroe Building.*

THE ADULT DISABLED.*

By THOMAS WHEELDON, M. D., Richmond, Va.

It is more than an honor to be allowed this opportunity of presenting the case of the "Adult Disabled" before you and I want to thank you for the privilege. Many of you, I am sure, have wondered why such a subject should have been chosen, and what phase is to be considered. The reason is that we have accepted the fact that the cripples are part of our community without really stopping to ponder on how to mend their state.

To pick up the beginning of the thread of our story we should proceed to Paris and watch the practice of Dr. Nicolas Andry, Professor of Medicine in the University of Paris, who, in the year 1741, when he was an old man of 81, wrote a very remarkable book on the prevention of deformities in children, and gave it the title of "Orthopaedia." He coined that word to designate the branch of medical learnin which has to do with the prevention and cure of the physical deformities of children. And to this, ortho-paedic surgeons devoted most of their attention until the outbreak of the World War. Then naturally, the men who took care of crippling conditions in children were turned to take care of the crippling conditions in soldiers; for what difference is there, in the main, in a muscle paralyzed by nerve injury from one whose nerve is destroyed by infantile paralysis. Joint involvement is the same, whether it arises from an infection from a gun shot wound or from an acute pyogenic infection.

A definite attempt was then made to formulate rules for the application of orthopaedic principles to the treatment of injuries received in war. Following this, "Orthopaedic Centers" were established in England and with these the "curative workshops." Speaking of this, Sir Robert Jones says that, by the time a soldier has passed through various phases of recovery from septic wounds in several different hospitals and is finally transferred to an Orthopaedic Center for treatment to correct deformity and restore the use of injured joints and muscles, his spirit is often broken. The shock of injury, frequently in itself severe, followed in succession by a long period of suppuration, and then by a wearisome convalescence during which he receives treatment by massage or electricity, or by monotonous movement with mechanical apparatus of the Zander type, too often leaves him discontented with hospital life, its monotonous round of routine, and its long periods of idleness.

In the Orthopaedic Center he finds his fellow-patients busily engaged in employments in which they are doing something, and it is not many days before he asks for a "job." Some regular work fosters habits of diligence and self-respect, and converts indolent and often discontented patients into happy men who soon begin to feel that they are becoming useful members of society and not mere derelicts.

Thus, when the preliminary stages of operative and surgical treatment are over, there is a steady gradation through massage and exercise to productive work, which is commenced as soon as the man can really begin to use his limb at all. If his former trade or employment is a suitable one, he is put to use tools he understands, otherwise some occupation suitable for his disability, and curative in its character is found for him.

Men with stiff ankles are set to drive a treadle lathe or fretsaw. If put on a treadle-exercising machine the monotony soon wearies the mind, but if the mind is engaged not on

*Read by invitation before the South Piedmont Medical Society in Lynchburg, Virginia, April 15, 1924.

the monotony of the foot work, but on the interest of the work turned out, neither mind nor body becomes tired.

Men with defective elbows and shoulders find exercise and mental diversion in the carpenter's and blacksmith's shops. If their hands and fingers are stiff, working with a big swab to clean windows or with a paint brush is a more interesting occupation than gripping spring dumb-bells.

Those of us who have any imagination cannot fail to realize the difference in atmosphere and *morale* in hospitals where the patients have nothing to do but smoke, play cards, or be entertained, from that found in those where for part of the day they have regular, useful and productive work.

Massage and exercise is no longer a mere routine: it all fits in and leads up to the idea of fitness—fitness to work and earn a living and serve the state in an economic sense.

This leads up to the conditions of today. We are confronted with numerous adults, the number of whom we shall see later, who are the casualties of industry or crippling disease of earlier years. The problem of what to do for them is large, but it seems as if it can be solved. Three systems are involved and needed. First there is the system of orthopaedic correction. Here the disabled are gotten into physical shape by operations or apparatus whereby they may be able to participate in the second system. An individual may be entirely bed-ridden by infantile paralysis or a paralysis following a fractured spine but, by correction of deformity and the application of certain apparatus, he can be gotten up and even be made to walk. I have in mind now a painter who had the misfortune to break his back and become paralyzed from the waist down. He had been settled with by the Compensation Bureau on the basis of being in bed the rest of his life. He is now painting again, and while he is not able to work in hazardous positions, he is able to earn a very good living.

The second system consists of a bureau whereby individuals are gotten "jobs" that they can do and at which something of value will be learned. The third system would naturally include a registered group of industrial plants where such individuals would be welcomed, due allowance being made for their limitations.

If this sounds very theoretical and only to be dreamed of, I want to assure you that definite steps are being taken whereby all of this can be worked out. We have the beginning in South Boston, Virginia, where a clinic is now in full swing for the seeking out of the disabled adults in Halifax County. Here each case is gone over thoroughly and treatment instituted for the correction of deformity present. The treatment is carried on at the clinic if possible, but, if hospitalization is necessary, it is arranged, at present, through the Sheltering Arms Hospital in Richmond. The follow-up work is of course done at the clinic. Thus our first system is made possible.

Through the State Department of Industrial Rehabilitation training is provided and work secured for those who have been so treated; and this department is listing more and more places where these individuals may be employed. Industrial heads are becoming more charitable and even now the building of a factory, where the bulk of the labor will be so supplied, is almost a certainty. So the seed has been sowed for all three of our systems.

It is expected that the South Boston Clinic will be the first unit of many such centers throughout the State and through this agency the number of disabled adults may be reduced, thereby converting them from liabilities to assets, for no cripple is producing as much as he could if corrected. It may, then, be of interest to you to know what was found in the first one hundred consecutive cases in South Boston, and I should for that reason summarize them. Before doing this, however, I want to say that every case included here is at least partially dependent on the community and could not pay for treatment otherwise. It was at first thought that probably twenty-five or thirty might be found in Halifax County. At the last clinic, at which forty-three were seen, those interested were forced to give advance dates for new patients rather than urge their coming in. The conditions here are probably duplicated in many parts of the State. The following is a resume of the first hundred consecutive cases taken care of:

SUMMARY.

Number of cases	100
Age	
Under 14 years	35
Over 14 years	65
Color	
Colored	30
White	70

Diagnoses

Nutritional diseases	1
Periostitis	1
Synovitis	1
Tuberculosis of hip	2
Meningitis	2
Syphilis of joints	2
Apophysitis	2
Cervical rib	2
Fractured hip	4
Ankylosis of joints following acute infections	4
Tuberculosis of spine	4
Amputations	5
Static conditions of feet	5
Scolions	6
Congenital deformities	7
Arthritis	7
Spastic (cerebral) paralysis	21
Infantile paralysis	24

Prognosis

If work were not taken into regard ninety-six cases could be improved and four could not.

If work were taken into regard eighty-six cases could be improved and fourteen could not.

Ten cases could be returned to full duty at once, and

Forty cases could eventually be returned to full duty.

Sixty cases needed prolonged follow-up treatment in the clinic and

Ninety cases would get worse without treatment.

It will be seen, then, that sixty-five per cent of the cases were adult disabled—or above fourteen years of age, the limit now set by law at which an individual may be employed. Seventy per cent were white, although no special effort was made to seek out the white any more than the colored. Only four individuals could not be helped some, and only fourteen could not be made suitable for more productive work. It is quite remarkable that ten cases, some of which were totally disabled, could be returned to full duty at once with some procedure not requiring over a few weeks' time; while forty cases could in all probability eventually do whole time work. The value of a permanent clinic is seen when sixty cases require prolonged follow up treatment; and the value of the work as a whole is seen when it is considered that ninety of the 100 cases would get worse, in some way, either as to the local condition or as to the bearing on the organism as a whole, if measures of prevention or correction were not instituted. Of this 100 cases, all have either had active treatment started or are in some stage of preparation for active treatment.

It is hoped that we may be able to get the other centers started as soon as possible.

318 *West Franklin Street.*

THE PULMONARY TUBERCULOUS PATIENT AS A SURGICAL RISK.*

By O. O. ASHWORTH, M. D., Richmond, Va.

Patients with pulmonary tuberculosis are substandard surgical risks. The equilibrium existing between the resistance and the disease may be so disturbed through exposure, hemorrhage, shock, and irritation from a prolonged or unwisely chosen anesthetic that a quiescent or a healed stage may become overwhelmingly active Diffusion to previously uninfected fields may result from lowered resistance, mixed infection, or aspiration of sputum and secretions from the nasopharynx.

Determination of the class of risk in patients with pulmonary tuberculosis should be carried out from a general standpoint, as is done for every pre-operative case in any well conducted hospital. A complete physical examination should be made with renal and blood studies in the laboratory. Patients with absent or negative sputum have the better prognosis. The vital capacity and results of breath holding tests are of some value.

Greater attention should be paid to objective and subjective symptoms than to physical findings in the chest. A patient who is well poised, well nourished, having but little fever and no cyanosis or acceleration of pulse rate, even though he may have extensive lung involvement, is a much better risk for any stress than one who may have only minimal involvement but who has an unstable nervous system, emaciation and cyanosis with rapid pulse. The mental attitude toward operation should be considered as in mild cases of hyperthyroidism; the hypersensitiveness of the sympathetic nervous system may be similar and the metabolic rate may be increased to plus 20 or 30.

A physiological classification of pulmonary tuberculosis from the standpoint of prognosis is of more import than an anatomical classification. There may be two cases having apparently identical lesions, yet in one the pulmonary symptoms predominate while in the other the general symptoms are most conspicuous. The two patients while having the same disease will thus present totally different symptomatology.

*Read before the Southside Virginia Medical Association, at Suffolk, March 11, 1924.

In the records of every tuberculosis sanatorium may be found the histories of many patients who date the onset of tubercular activity to an operation, most frequently following tonsillectomies, under general anesthesia. This often could be avoided were there more care in pre-operative and post-operative consideration of the general condition of the patient. It is quite natural that every specialist has a tendency to emphasize conditions that lie within his particular field and to slight those in others.

The choice and duration of the anesthetic and the skill with which it is administered are vital factors in operations on patients with pulmonary tuberculosis. The anesthetic should be one which, after a careful estimation of the tubercular risk, offers the greatest advantage to the patient. Local or regional anesthesia would be the choice whenever possible to use it without too much handicap to surgical skill. Nitrous-oxide-oxygen has been most frequently employed in the past. Due to the fact that complete muscular relaxation is seldom obtained and because of its tendency to cause asphyxia, rise of blood pressure, disordered and irregular breathing with resulting aspiration of the secretions of the nasopharynx, nitrous oxide is not ideal as a general anesthetic. Ether may be given with safety in healed tuberculosis. It should preferably be given by the open method, since patients with tuberculosis are very intolerant of air limitation. Chloroform should not be used because of its depression of the heart and tendency to toxic after-effects resulting in lowered tissue resistance.

The new ethylene-oxygen general anesthetic offers greater hope for surgery in the tuberculous patient. The ease and rapidity with which anesthesia is induced by ethylene-oxygen is most striking. There is no increase in the secretions of the nasopharynx or upper respiratory tract, there is absence of struggling and disordered breathing with lessened tendency to aspiration, and no cyanosis. There is no diaphoresis, hence no tendency to chilling with loss of body fluids as with the other general anesthetics. In a series of 116 anesthesias with ethylene-oxygen at St. Elizabeth's Hospital, there was not a single case of post-operative respiratory complication which could in any way be attributed to this anesthetic.

In all cases, the operating room should be at a proper temperature, and all appliances for dealing with shock and accidents of anesthesia should be at hand. The patient should lie upon the affected side when possible and pre-operative administration of morphine and atropine is indicated.

It is often the complications and associated diseases that arise that demand the greatest attention in tuberculosis work.

I am reporting the following cases to illustrate the successful treatment by surgery of associated conditions in tuberculous patients, which conditions might have proven fatal handicaps in their progress:

Case I. C. F., female, single, aged 42, entered St. Elizabeth's Hospital, November 28, 1923, with a history of having had tuberculosis for four years. The chief complaint was "intestinal trouble."

Present Illness: The patient first noticed intermittent colicky pain in the lower abdomen five months previous to admission, at which time she had some increase in the menstrual flow. She then consulted a surgeon who, in conjunction with an internist, informed her that she had a mass in her pelvis but that they would not advise an operation on account of her lung condition. She then consulted another surgeon who gave her radium treatment. The pain continued in spells and became generalized, more intense in the upper abdomen. The abdomen became distended two months ago, since which time she often had nausea and vomiting and was confined to bed. Nausea and vomiting seemed to have no relation to the time of taking food, though food or water caused pain. She had obstinate constipation since the onset of the present illness. She had lost about 15 pounds in weight, had a maximum temperature of 100.5°, and her cough and expectoration had increased considerably. She retained practically no food for four days previous to the time of admission.

Briefly her physical examination indicated a well poised, well developed and nourished woman about middle age. Skin and mucous surfaces were slightly pale.

Heart: Apex impulse in the 5th intercostal space 10 cm. from the midline. All sounds were of good quality, and there were no murmurs. Pulse was 90 per minute and regular in force and rhythm. The blood pressure was 108/64.

Lungs: Evidence of extensive lesions at

both apices with a rather large cavity at the right apex. There were medium moist rales after expiratory cough on the left anteriorly to the 3rd rib and posteriorly to the 6th dorsal vertebra. There were large moist rales to the clavicle on the right anteriorly, and posteriorly on the right to the spine of the scapula after expiratory cough. An X-ray examination showed extensive old lesions at both apices, a cavity at the right apex and a small area of breaking down of the lung tissue at the left apex, with several small areas of consolidation between the first and second ribs on the left side.

Abdomen: The abdomen showed marked distention, with rather thick abdominal walls and a ventral hernia at the site of a previous operation for an appendiceal abscess. There was shifting dulness in both flanks with moderate tenderness throughout. There was increased audible peristalsis. By bimanual examination a large definite tender mass could be felt in the pelvis, though this was hard to outline because of thick and tense abdominal walls. The examination was otherwise negative.

Routine blood examination showed a mild secondary anemia. Wassermann was negative. Urinary examination was negative except for a trace of albumin. Intravenous kidney function test showed an elimination of 62 per cent of phenolsulphonephthalein the first hour. Sputum showed many tubercle bacilli.

On account of the history, it was thought that the patient probably had a tubercular peritonitis and ascites with a focus in the pelvis and partial intestinal obstruction from adhesions. The patient was digitalized by the Eggleston method during 48 hours previous to operation, which was done by Dr. J. Shelton Horsley under local and ethylene-oxygen anesthesia. There was a considerable quantity of yellowish free fluid in the abdominal cavity which was removed by a suction apparatus. A papillary cyst adenoma of the right ovary, of low grade malignancy, which extended to the level of the navel and was adherent to the small bowel, was removed. The operation lasted 1 hour and 25 minutes; the general anesthetic lasted 1 hour and 5 minutes. The patient showed some signs of shock which could have been largely attributed to the separation of numerous adhesions and the loss of blood which was considerable on account of the friable nature of the tumor and the adhesions. The patient recovered rapidly from shock, and after two days was able to take fruit juices without vomiting.

Her recovery was uneventful. On account of the slight malignancy of the tumor, deep X-ray therapy was given over the abdomen by Dr. Fred M. Hodges three weeks after the operation. At no time following the operation did her temperature exceed that which it had been for one week previous to operation. The physical signs of tuberculous activity were less six weeks after operation than before operation, her temperature was normal, and cough and expectoration were less. At present, three months from the operation, she is up most of the day, has practically no cough, no expectoration, weighs more than for eight months previously, and the physical signs in her chest indicate steady improvement.

Case II. M. S. D., female, widow, aged 29, was removed from Pine Camp Hospital to St. Elizabeth's Hospital, February 11, 1924, with a history of having had symptoms of active tuberculosis for one year. The chief complaint was "pain in the right upper portion of the abdomen."

Four months previously, the patient had an attack of pain in the epigastrium, which lasted intermittently for two weeks; at this time there was apparently some jaundice with nausea and vomiting when the pain was most severe. About two weeks ago there was a similar attack which has persisted. The pain was colicky in character and most intense in the pit of the stomach, radiated to the right shoulder blade, and required frequent hypodermics for relief. She had retained practically no food for one week. Vomitus was clear and greenish in character.

The patient had been in bed for seven months. Five weeks before admission, an artificial pneumothorax of the right lung was done at Pine Camp Hospital. Since that time her general condition improved, fever was lower and cough and expectoration much less. She gained but little weight, however, and her appetite and digestion were very poor. Her temperature was 101° when she was admitted to St. Elizabeth's.

The family history and past history have no bearing on the case except that her husband died of tuberculosis five years ago.

Physical examination showed a poorly developed and poorly nourished woman of small stature. The face was flushed, and the mucous

surfaces well injected. The right eyeball rotated outward which resulted from a tenotomy of the right internal rectus muscle several years ago.

Heart: Apex impulse in the 6th interspace was 12cm. from the midline. All sounds were of good quality. Pulse was 132 per minute, regular in force and rhythm. There were no murmurs. Blood pressure was 105/60.

Lungs: There was evidence of complete collapse of the right lung by pneumothorax, with medium moist rales at the left apex after expiratory cough. The moist rales were found anteriorly to the second rib and posteriorly to the spine of the scapula.

Abdomen: There was slight rigidity of the muscles and marked tenderness in the right upper quadrant. Physical examination was otherwise negative.

Laboratory Examinations: Urine was negative except for acetone and a trace of albumin. Routine blood examination showed that the white blood count was 14,800, polys 88. Wassermann was negative. The sputum showed many tubercle bacilli.

From the history and physical examination, a diagnosis of acute cholecystitis was made. Under local anesthesia an upper right rectus incision was made by Dr. Horsley. Some clear free fluid was found in the abdomen. A gall-bladder drainage was made and the patient was but little shocked from the operation. The gall-bladder showed very slight external evidence of pathology, but was filled with a soft material about the color and consistency of blood clots. There was an abundance of drainage of thick, tarry bile for about a week, which gradually cleared up.

The patient's maximum temperature ranged from 99.6° to 102° in the afternoon for several weeks before her admission, and was 103° on the day following the operation, after which time it did not go above 101.5°. She remained in the hospital for 28 days, during which time she had two "gas" refills for the pneumothorax. Her maximum evening temperature was 100° during the last week in the hospital, and during the last two weeks she was able to take one quart of milk in addition to three regular meals per day. She was not weighed, but apparently had gained some weight and her general appearance was much improved.

Discussion

With better histories, better studies and interpretation of progress or retrogression, more frequent X-ray plates and with the advances of surgery, it seems likely that more cases of pulmonary tuberculosis may be removed from the expectant care method of treatment and assisted actually toward permanent cure. In a disease in which the clinical entity is nearly always secondary to the stress of environmental influences or to the handicap of intercurrent disease, too much emphasis cannot be made in regard to the treatment of associated pathological conditions.

Since rest and nutrition are the chief factors in treating tuberculosis, any operation, as for gall-bladder disease, gastric ulcer, appendicitis, etc., which will relieve indigestion and promote assimilation of food with a minimum of danger from the operation, is a great aid in treating the tuberculous.

Acute tuberculosis is always the expression of reinfection which occurs when there has been a lowering of the reserve resisting power of the host. A "quiescent" focus can often be found if the pulmonary examination before an operation is complete, and extension of the tuberculous process may be avoided if due consideration is given to the patient's delicate "balance of power."

St. Elizabeth's Hospital.

Bibliography.

Wetherill, H. G.—Surgery for the Tuberculous. J. A. M. A., January 6, 1923.

The Balance of Power in Infection. Colorado Med., 14, 168, June, 1917.

Horsley, J. S., Jr.—Ethylene-Oxygen Anesthesia: A Report of 116 Anesthesias. Va. Med. Monthly, March, 1924.

CANCER OF THE CERVIX.*

By CORA Z. CORPENING, M. D., Suffolk, Va.

Two weeks ago I received notice that I was appointed to act as leader of general discussion at this meeting and, while reading the notice, I was told a patient was waiting to see me. I went to the examining room, wondering as I went what subject I could choose that would be of general interest and benefit. The patient at hand gave me my subject. Her history ran like this:

She was colored, aged fifty-eight, married, and was always strong and healthy. She had given birth to nine children, and had her menopause fourteen years ago. Last September she had some rather free uterine bleeding which lasted one day. Afterward, every few days,

*Read before the Southside Virginia Medical Society in Suffolk, March 11, 1924.

there was some bloody spotting. After two months a watery discharge set up which has persisted until the present time. Her doctor attended her from the first, and prescribed some medicine which she took diligently.

She had no pain nor discomfort until the first of February, five months after the onset of the trouble, when dull pain set up in the lower pelvis. A week later she seemed much weaker than usual and had lost some weight. The doctor made his first examination after the onset of pain and referred her to the hospital, saying he could do nothing for her. Neither could we help her, for on examination a large cauliflower cancer of the cervix was found which had deeply involved the walls of the vagina, bladder, and rectum, and she was sent home to die.

When I had heard the history of this patient, there was immediately brought to my mind several such cases which had come in during the past year, most of them giving this identical history: A menopause passed several years previously, then the sudden show of blood with some spotting continuing, the visit to the doctor who gave them some medicine, and several months later the final stages with pelvic pain which forced the doctor to make an examination, which disclosed the ravages of a disease which had played havoc with many lives and claimed yet another as its victim.

The study of the records of the last twenty cases of cervical cancer admitted to Lakeview Hospital revealed the following facts: One of the patients was twenty-seven years of age, four were between the ages of thirty and thirty-five, but the majority were over forty-five years of age, eleven having passed the menopause. One had had an ectopic gestation with no other pregnancies, the others were multipara. One had no pathological report, the others were all diagnosed squamous cell carcinomata. Two cases had carcinoma superimposed on a cervical stump following hysterectomy. In sixteen cases intermenstrual bleeding was the earliest symptom; in four cases a watery leucorrhoea was the first sign. Eleven of the advanced cases complained of pelvic pain of two to eight weeks' duration. One case was diagnosed during a routine examination for other trouble. Three cases were early and permitted radical surgery; seven cases were moderately advanced permitting operative procedure with only temporary improvement; and ten cases were inoperable, with the walls of the vagina and the surrounding structures deeply involved.

If this is an index to the conditions generally prevailing, is it any wonder that the mortality of cervical cancer is high? Whose fault is it that one-half the cases are inoperable before reaching the hospital and that seventy per cent of the remainder are too far advanced for permanent relief? Are these conditions due to ignorance on the part of the medical profession?

In the majority of cases ignorance is not the causal factor, for the signs and symptoms are such that he who runs may read, and if there is a question an examination of a specimen of the cervix by a trained pathologist is easily made and is much cheaper than a life. If these advanced cases of carcinoma are not due to ignorance on the part of the profession then what is responsible for them and what can remedy the situation?

I should say that perhaps five per cent of the cases do not consult doctors until they are already advanced. I am convinced that in many cases the blood is on the family physician's hands, because he has failed to get the blood on his gloves in an early careful examination, but he has treated these cases from early to advanced stages without even having made an examination or a diagnosis. The remaining cases which reach the advanced stages are due to error in judgment, or mistaken diagnosis, and include the cases which have their incipiency before the age of forty, or those which have their beginning about the time the menopause is expected, and the patient is treated for "the change of life" and no examination is made to detect the additional trouble responsible for the symptoms.

How then may we prevent the advanced stages of cancer of the cervix? The answer is by diagnosing and probably treating the incipient cases. How may these be detected? Again the answer is easy, for few diseases offer as little difficulty in diagnosis as cancer of the cervix. Intermenstrual bleeding is the leading cardinal symptom which should direct our attention to carcinoma. This spotting during the child-bearing period means one of five things: Miscarriage, trauma, ectopic, fibroid or cancer. During and after the menopause it means one of two things, fibroid or cancer. A vaginal examination will often clear up the diagnosis, but not infrequently an examination of the cervical tissue, or the scrap-

ings from a curettage may be necessary. In the latter case an immediate hysterectomy should be done following positive findings, to prevent the metastasis of cancer cells.

It is well to bear in mind that cancer appears as early as the twenty-fifth year, that it may appear on a cervical stump after a subtotal hysterectomy, but that it is most commonly found after the forty-fifth year. Therefore, all patients with a suggestive history, coming within this period, should be subjected to a painstaking examination and, if they refuse to have this examination, the doctor should refuse treatment of the case. Our mortality would then be reduced to a minimum.

With early diagnosis early radical treatment is curative. In moderately advanced cases, radium, X-ray and the cautery have reduced many to an operative stage, and have temporarily arrested others. In the late advanced cases it is humane to let them die with no interference, save to make them as comfortable as possible.

REPORT OF CASE OF UNUSUAL AND COMPLETE LARYNGEAL STENOSIS.*

By J. R. GORMAN, M. D., Lynchburg, Va.

Mrs. M. J. Y. This patient was seen for the first time November, 1921, presenting the following history: The patient is a widow, 62 years, having been married twice.

History of present condition: First had trouble with larynx twenty years ago, starting with sore throat and hoarseness. This condition kept up for eight years with gradual loss of voice and continued ulcerations of both tonsils and pharynx. At the end of eight years, this patient had a tracheotomy done for relief of obstructed breathing. She was told at this time she could not live very long, a probable diagnosis of malignancy or tuberculosis being made. For the next twelve years she continued to live the life of a partial invalid, wearing the tracheotomy tube during that entire time. In addition to the discomfort of the tube, she had suffered a vast amount of discomfort from the pain incident to the local condition in her throat. She at no time had a blood examination or any other examination except local inspection and no treatment except local treatment for the throat.

Inspection of the throat showed very extensive ulcerative processes of the tonsils, soft palate, posterior pharyngeal wall, epipharynx and posterior ends of both inferior turbinates. Examination of larynx by indirect method showed extensive ulcerations involving the whole epiglottis, larynx, extending down into the trachea. The vocal cords, both true and false, were entirely destroyed by the ulcerative process. The general condition of patient was very good.

The Wassermann examination showed a four plus blood. Arrangements were made for immediate intensive specific treatment, which extended over a period of eight months, including thirty-six injections of salvarsan and one hundred and twenty injections of mercury intramuscularly. At the end of this time, the patient still had a four plus Wassermann reaction. The Wassermann at the date of last examination, six months ago, was still four plus, the supposition being that the patient has a Wassermann fast blood.

This patient was seen every two weeks during the period of her active specific treatment. The local ulcerative processes healed remarkably quickly. Within two weeks of the second treatment, the ulceration in the upper part of the throat had healed. In the process of healing, there developed across the upper part of the larynx a very thick membrane completely obstructing the larynx. This occurred in the form of a web-like process extending from the base of the epiglottis in front along the line of the false vocal cords to the base of the arytenoids behind.

This patient presented a difficult problem to handle. She did not have the means to go to Dr. Chevalier Jackson in Philadelphia, where we wished to send her. On June 27, 1922, under local anesthesia, we removed as much of the membrane as possible by means of the direct laryngoscope. At this operation, we found the membrane very thin in front but rapidly becoming thicker toward the back until the thickness had increased to at least one-fourth of an inch. We allowed the throat to heal completely from this operation and, on July the 20th, a second operation was done, removing again as much of the obstructing membrane as possible. Following this operation, the larynx was dilated with the Jackson triangular laryngeal dilators, commencing two days after the operation. The dilatations were done every other day from this time up to October 11th, when the dilatations were discontinued and the tracheotomy tube gradually

*Read before the Virginia Society of Oto-Laryngology and Ophthalmology at its meeting in Lynchburg, April 13, 1924.

blocked off. On November the 11th, after the tracheotomy tube had remained completely blocked for three weeks without any interference with breathing and no decrease in the size of the laryngeal opening, the tracheotomy tube was removed and patient seen twice a week for six weeks. At the end of this time the sinus leading into the trachea had completely closed and healed over.

The patient has been under observation constantly since that time and has been perfectly comfortable and has had no recurrence of the local manifestations of the infection. The vocal cords are completely destroyed. The patient speaks very distinctly but quite hoarsely, of course.

TREATMENT OF VINCENT'S ANGINA.*

By T. LATANE DRISCOLL, M. D., Richmond, Va.
Associate in Syphilology, Medical College of Virginia.

My excuse for bringing this subject before you, with so few case reports, is the fact that etiologically, and indeed symptomatically, Vincent's angina, and trench mouth are identical and, after treating in all about fifty cases of trench mouth, with brilliant results especially as to the large ulcers encountered, I felt that I might give with a reasonable degree of confidence the result of treating this condition in the throat.

It may be said that we have a specific in the therapeusis of Vincent's in the form of arsphenamine. This may be true, but I do know that this is not a uniform opinion, as I have repeatedly had throat specialists tell me that this or that case did not clear up after "606" treatment, and I thought perhaps in those cases it might not be amiss to use the treatment about to be enumerated.

This is only a preliminary report, as I shall ultimately report the results of a greater number of cases, to prove or disprove my idea. The following case histories are pertinent to the subject:

Case 1.—J. E. W., male, age 24, consulted me January 4, 1924, because he thought there was a recurrence of syphilis in the throat. There was a distinct ulcerated, punched out area on both tonsils, and an ulcer on right pillar, involving about one-half of tonsillar area. This membrane was of a yellowish white appearance, and throat was very painful. Temperature 101.5° F. Patient somewhat ill. No signs of syphilis elsewhere and, in view of the fact that patient had been treated rather intensively a few months previously, I felt that such an extensive area involved was improbably syphilitic.

A tentative diagnosis of Vincent's angina was made. This was confirmed by finding the spironema vincentii and the Bacillus fusiformis. The specimen was stained with carbolated gentian violet.

The course of treatment was as follows: Patient was given 5 c.c. antimony and potassium tartrate, 1 per cent solution, intravenously, on January 4, at 1 P. M.

On January 5, patient presented himself for second injection, which was given with no increase of dose. Examination at this time showed at least one-half of ulcerated area gone.

January 6, treatment was repeated as before.

January 7, patient was seen for last time, when he was found to have none of former symptoms and was feeling entirely comfortable.

Case 2.—Dr. C., age 26, dentist, consulted me for a sore throat, and stated he had trench mouth. There was an ulcer on right buccal surface of cheek, about the size of a dime, and three ulcers on left tonsil, with four small ulcers on right.

Patient was quite sick, with very painful swallowing, and almost complete inability to masticate. Gums were somewhat reddened, with distinct retraction, bled readily, and at times were painful.

Spirilla and fusiform Bacilli were found in ulcers and gum margins. Diagnosis: Vincent's angina and trench mouth.

Course of treatment: January 8, patient given tartar emetic in 5 c.c. doses.

January 9, throat was painless, and ulcerated areas markedly decreased in size.

January 10, treatment repeated.

January 13, fourth dose administered. At this time, five days after the initial injection, there were no ulcerations in throat, and patient was entirely free of any discomfort.

Conclusions

If I am allowed to arrive at any conclusions from these cases, it would seem we have a remedy that gives almost dramatic results in treatment of Vincent's angina, and for those cases that seem most intractable the use of antimony would seem entirely justified.

Medical Arts Building.

*Read before the Richmond Academy of Medicine.

PSORIASIS.
Case Report.*

By GRAFTON TYLER BROWN, B. S., M. D.,
Washington, D. C.

Mr. L. A. W., age 47 years, was referred to me December 3, 1921, at the suggestion of Dr. Stromberger that his psoriasis might be due to some form of protein sensitization. The trouble had started over three years previous to this date as a little pimple in the hair in front of the right ear. It spread first over the head with the formation of greasy scales, and then the forearms, thighs and lower left leg became affected. Spots were two to three inches square. After one and one-half years of this he was advised to use a preparation of liquid sulphur in his bath and the trouble left his head entirely. Under treatment with chrysarobin, the psoriasis all disappeared except a place on the chest about one-half inch square. While endeavoring to clear up this small spot, dermatitis set in, followed by a spread of the psoriasis all over his body. He lost all the hair off his head and body and also lost his finger and toe nails. His legs and feet were terribly swollen. It hurt him to stand still, so he would pace up and down the room for hours at a time. Had lost thirty pounds in weight, from 165 to 135 pounds. He had been treated by six different doctors, the last one a competent skin specialist. Scales would pile up in places on his body, at least one-half inch thick, to look like white rosebuds and, when he would take off his clothes, they would fall out in the room in a shower. A heaping dustpan full of scales could be swept out of his bed every morning. At times he would look at himself in the mirror and cry like a baby and wish that he were dead. I had Dr. H. H. Hazen in consultation with me and he stated that it was one of the worst cases of psoriasis he had ever seen.

His teeth were in perfect condition. Tonsils negative. Heart and lungs normal. Hemoglobin 70 per cent. Urine negative on repeated examinations, with a specific gravity of 1.020 and no albumen or sugar.

Personal and family history negative as regards allergy. It was impossible to make any skin tests for protein sensitization, as he did not have a spot of normal skin on his entire body.

Vegetarian diet was tried but later at the suggestion of Dr. Hazen he was allowed to eat everything. His appetite was enormous, probably due to the great loss of protein through the scales. He would have fever about 8 P. M. every evening and would drink large quantities of water. Bowels moved regularly twice every day.

As staphylococcus albus is the organism commonly found in psoriasis, I treated him with a vaccine prepared from a pure culture of staphylococcus albus obtained from another patient. These inoculations were given twice a week in increasing dosage from 100 million to one billion organisms. He made a marked and progressive improvement while taking these treatments but was forced to discontinue them as I had used up the vaccine.

I wanted him to have sun baths but as it was the middle of winter, it was impossible to get these out-of-doors. As a substitute, I had him lie naked on a cot in an overheated room with the sun shining through a window on him. I realized that the window glass filtered out from the sunlight a large part of the actinic or ultra-violet rays, but it was about the best that we could do under the circumstances. With the aid of a few barrel hoops sawed in half and some ordinary electric light bulbs I rigged up a crude electric light bath that could be covered with the bed clothes, for use on cloudy days. These light baths seemed to be very soothing to him and he would sleep for hours at a time in this way. Later as the weather became warmer he was encouraged to spend his days working in the garden, bareheaded and wearing only a white sleeveless shirt and a pair of white trousers in order that he might absorb as much of God's sunshine as possible.

He had been advised to try all sorts of baths, many of them of long duration. We came to the conclusion that water was irritating to his skin, so bathing was reduced to a minimum. His skin became very dry, cracked and bleeding, and pure olive oil was applied freely for this condition.

I consider the mental state of the patient an important factor in these cases, so everything possible was done to cheer and encourage him and assure him that he was going to get entirely well. It is a common experience to see these cases have an exacerbation of their psoriasis following some nervous shock, mental strain, worry over business affairs, etc.

*Presented before the Section on Internal Medicine of the Medical Society of the District of Columbia, February 12, 1924.

A stock staphylococcus vaccine was given a brief trial, but with no results and no local reaction at the site of inoculation. In regard to this point, I am convinced that a vaccine that fails to give any local reaction whatsoever, is unworthy of extended trial.

Cultures were then obtained from the under surface of the scales, by first cleansing the outer surface of the scales with alcohol and then removing them with sterile thumb forceps and planting them immediately on blood serum agar. On incubation, growth was seen in the form of small grayish colonies that were grown with difficulty. The organism was an unidentified Gram negative coccus, resembling a staphylococcus in morphology. Bacteriological work on this case was performed by Mr. Shoub, formerly of the Hygienic Laboratory. A vaccine was prepared from this organism, and he was treated with the same in gradually increasing doses from 100 million to 5 billion, at first twice a week, then every 5 days and finally once a week. He obtained good local reactions from these inoculations, and made progressive improvement until June 29, 1922, when he was discharged as cured, and has remained well to date, a period of over a year and a half.

1726 *M Street, Northwest.*

ELECTRO-COAGULATION METHODS IN THE TREATMENT OF HEMORRHOIDS. A SIMPLE, BLOODLESS, AMBULANT TECHNIQUE.

By J. B. H. WARING, M. D., Blanchester, Ohio.

This article is prompted by perusal of an article in a recent issue of the VIRGINIA MEDICAL MONTHLY, in which a Virginia surgeon gives a very interesting description of his surgical technique in the treatment of this widespread condition. In the discussion on this paper, another Virginia doctor goes on to relate what to him was a very peculiar state of affairs in his own city, in that patients were refusing reference to their local surgeons for hemorrhoid operation; and in some instances were going all the way out to some town in Michigan, where two brothers, presumably advertising pile specialists, were treating piles in a very easy, satisfactory manner, with the electric needle. From the standpoint of the patient, at any rate, this electric needle operation was so much easier and less painful, that pile sufferers were at the point where they would go to all the time and expense of the trip out to Michigan to obtain relief that they could not get in their own town, apparently.

The doctor who makes these remarks in his discussion, apparently did not know this technique; but expressed a desire to know more about it—that there must be something in it, so to speak. On the assumption that there are a number of other doctors, who also would like to know a little something about electric needle methods of pile treatment, these notes are given.

I hold no brief for the advertising pile specialist or for any other sort of advertising specialist, whether he happens to be an out-and-out quack, or whether he happens to be a trained physician who turns to the methods of the charlatan because he thinks there are more get-rich-quick possibilities therein; but I do think physicians who more rigidly adhere to the time-honored ethics of our profession, can often take a leaf out of the notebook of these practitioners. In other words, many of these irregulars are men of a bold, keen type of mentality, quick to seize upon newer and better methods. The regular physician then, must not blindly consider everything as verboten that these irregulars employ in their work; but should study their professional methods in contradistinction to their "business" methods, and, that which is found good, take up and incorporate into their own practice.

If these men are doing better work than we are, it is up to us to bring our own work up to that standard, and to disregard, if we can, the source of our new knowledge perhaps. The time has not been so long gone that any doctor, taking up electrical methods in any of its many forms, was considered to be flirting dangerously near the out-and-out quack class. It is true that this attitude was brought about because the quacks and the advertising specialists were quick to see the appeal in such methods—the mystery it carried, and the possibilities of large fees. Because the quacks used it, the ethical physician religiously left it alone. Physiotherapy, however, is rapidly coming into its own, all along the line; and the progressive doctor who senses the trend of the popular mind in things medical will do well to give serious thought to physical therapy. Because we have neglected this broad field, the osteopath and the succeeding chiropractor

have found a rich field, virtually virgin soil, on which to grow in exotic exuberance

The ethical surgeon wants to take the pile sufferer, put him in hospital for a week or two weeks, and run him through the pain and expense of major surgical procedure, when relief may be afforded with a comparatively inexpensive, painless minor surgical attack. It is no wonder then, that patients who have heard from word of mouth—or perchance through the widely circulated booklets of these advertising specialists so-called—of the simple, easy methods they use will refuse to consign themselves to the tender mercies of the perfectly ethical, but major surgically-minded operator.

To overcome this unsatisfactory situation, we must have a campaign of education, both for the doctor and for the laity; the doctor must learn how to use these easier, milder methods, and the laity must be educated to know that their own doctors and surgeons can afford them relief just as easily, and in a better safer way, than can the irregular, whose general medical and surgical training is often far from complete.

With these general remarks on the situation, I will present a simple electrical treatment of hemorrhoids. No claim for originality is made, of course, for the successive steps in technique.

Operation is performed under local anesthesia. About three-quarters of an hour prior to operation, morphin sulphate, grains ¼ to 1/3, is given by mouth, together with atropine sulphate, grains 1/100, and strychnin sulphate, grains 1/30. This may be given by hypo if desired.

Bowels should have been emptied prior to operation, preferably by a simple enema or glycerin suppository. Operative field is now cleansed with mild soap and water, followed by irrigation with a weak potassium permanganate solution, say 1 to 3,000 or 1 to 5,000; this largely eliminates fecal odor for the time being, and renders field more satisfactory to work in from an olfactory standpoint anyway.

An appropriate spot of rectal mucosa is swabbed with 10 per cent cocain and through this preliminarily anesthetized area, the entire operative field is successively anesthetized in a practically painless method by successive injections of 1 or 2 per cent novocain solution. If a glass suction cup of sufficient size to cover the anus is now applied, internal piles will be drawn down and temporarily converted into interno-external piles; likewise, all pile masses will be congested up and made prominent to inspection, so that the operator is not so likely to miss a budding pile or two, and have his patient return in six months after operation with the lament that his piles are coming back on him, etc. Individual pile masses may now be taken up one by one and held in the grasp of an appropriate sized suction tube of glass; or they may be drawn out with seizing forceps, and then held across their base with a regular pile clamp, merely for convenience of attack. The suction tube holds the hemorrhoid out prominently, and serves the purpose of a steadying forceps, without the crushing and lacerating effect of a pile clamp.

An electro-coagulation needle in an insulated handle is now brought into play, using the bipolar d'Arsonval high-frequency electric

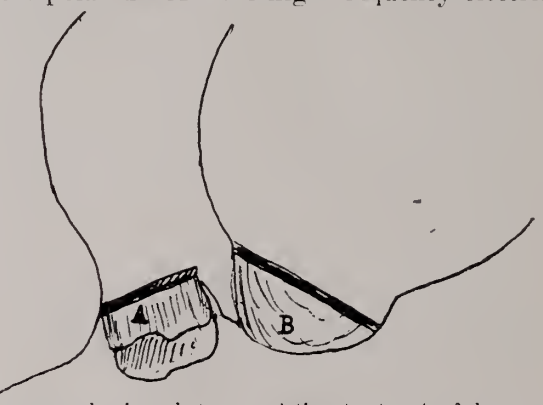


Diagram showing electro-coagulation treatment of hemorrhoids. A. Internal bleeding hemorrhoid. B. External hemorrhoid.
An area across the base of each hemorrhoid has been electro-coagulated, with resultant destruction of its blood and lymphatic supply.

current directly on the pile mass. The indifferent electrode, usually about a 5 or 6 inch plate of diathermy metal, is strapped over one leg or over the shoulder or abdomen, care being taken to have good contact by means of a cloth wrung out of saline, damp felt or special electrode metal with soap-suds for better contact or patient may grasp the regular auto-condensation handle instead.

The electro-coagulation needle in an insulated handle is now connected by flexible insulated wiring to active pole, and the needle carried through base of hemorrhoid under edges of suction tube holding pile out prominently. With foot-switch usage, just enough current is sent through the needle to coagulate, but not to carbonize or burn hemorrhoidal tissues; this process is repeated with several in-

jections of the needle until a layer of tissue at base of pile proper is entirely coagulated, thus destroying blood and lymphatic supply to the pile proper. A little experience will quickly determine for the operator just about the right amount of current to employ.

If there are, as is usually the case, several pile masses to be removed, each successive pile is taken up and treated in the same manner; only a few minutes is required for the entire procedure. If care is taken to handle the pile masses gently and proper anesthesia obtained, the entire operation is painless. The tissues at base of each pile are simply coagulated in a manner similar to the poaching of an egg. Pain following the operation would be indicative of some sparking and some degree of carbonization on the active electrode, which is to be avoided.

This completes the operation proper; we have strangulated each pile mass far more effectively than if we had the stoutest ligature encircling its base, and this has been accomplished without any pain, bleeding or use of the knife; no raw surfaces have been left to cause the pain, which follows the usual surgical treatment of piles. Coagulation of its base destroys blood and lymphatic supply of the pile mass, and in a few days this sloughs away in a painless and bloodless manner, skin and rectal mucosa involved healing over the operated area very rapidly. Our patient has not been subjected to hospitalization, with its attendant fright to the average patient; he is not upset and miserable in mind and body after reaction from a general anesthetic; further, he is not troubled to any extent with irritation around the anus. The treatment is admirably an office procedure, and at its conclusion our patient is ambulant, and able to go home under his own steam at it were. Nervous or weakly patients are instructed to take it easy for a day or two; one old lady of 80 summers, I kept in bed for three days; but most of them are up and about in short order.

We do not have to make any radical change in the patient's dietary, but instruct him to eat a trifle less for a few days until full activity is restored. Liquid petrolatum, or preferably petrolagar, in full dosage for a few days is very helpful in rendering the bowel passages bland and easy; our patients do not dread the first bowel passage after operation; this gives them practically no discomfort, and we have the bowels move the next morning as usual. This is radically different from major surgical attack on hemorrhoids, where often the bowels are purposely restrained for "healing" purposes; and after a number of days the first bowel action is usually looked upon as a formidable adventure, fortified by large dosage of oleum ricini.

In other words, the bowels are kept in a soft, easy condition, and some mild, soothing ointment kept applied to the anal region from day to day for a few days. Otherwise the patient is free to go about his usual avocation and forget he ever had piles.

A busy factory superintendent was operated at 4 p. m. one day; given two tablets of morphin sulphate, grains ¼ each, with instructions to use if needed during the night for pain; at 8 p. m. he was called to the factory because of a tie-up and worked until midnight; up again at 8 a. m., put in his full day of work after an easy morning bowel action; called on his doctor after 4 p. m. that day and returned the two morphin tablets unused. Electro-coagulation methods certainly did not interfere with his daily routine to any extent.

A young man of good physique, but who was much underweight from a strictly milk diet of some near-stomach-specialist, who was on the trail of an alleged gastric ulcer, came in one morning for treatment of his piles. He was much constipated and all out of sorts all along the gastro-intestinal tract. His piles were electro-coagulated and, after sitting around the office perhaps a half hour while ointment and other supplies were procured, got into his Ford and drove home some 25 miles over none too good roads. This patient telephoned me at 8 o'clock that night, that he was taking it easy by the fireside, and felt better than he had for three years. This patient was half starved, and proper feeding brought up his weight in six weeks to 21 pounds better; his constipation and "threatened" gastric ulcer had cleared up; in other words, he looked and acted like a new man. Of course, all such patients must be given adequate instructions as to proper diet and personal hygiene, etc., but so far as their pile affliction is concerned, they become things of the past after proper electro-coagulation treatment.

No effort has been made to go into this subject extensively, or to give in minute detail every step in technique; my idea has been merely to present in a general way, the subject

of electro-coagulation treatment of hemorrhoids; to invite the attention of fellow physicians to the fact that for the average case of hemorrhoids the usual surgical methods should be *passe* in this day and age; and that we, as physicians, should ever be on the alert to take hold of and to study out fully every advance or suggested advance in medicine and surgery; further that we should ever be on the alert to find out all about any new development that may be possibly newer and better than the methods we are now using; and lastly that we be not prejudiced at the source of any new development, whether it comes from the big fellow with an established reputation, the little fellow at an obscure country cross-roads, or from the advertising quack. Forget the source in other words, and study the method. If it is better, take it and use it, and let us not be too superficial in our study of the newer methods. If we will do this, our patients will not refuse to go to our local surgeons, and they will not go to Michigan or Kamchatka for that matter for relief, neither will they lend ready support to the chiropractor and the constantly appearing new cults; instead, they will take the methods of their family physicians and surgeons, if those family physicians and surgeons will always stand ready to give them that which is newer and better.

109 *East Main Street.*

DETERMINATION OF KIDNEY FUNCTION.*

By S. H. ROSENTHAL, M. D., Lynchburg, Va.

The subject assigned to me for discussion today is so broad and vast that I would consider it a presumption on my part to attempt even to sketch the bare outlines that would cover it. If limitation and restriction in the discussion of this subject becomes necessary because of considerations of expediency, I thought it best to take up a subdivision of the task assigned to me, which may well serve as an introduction to the whole subject. I trust that you will all agree with me that in order to diagnose properly any disease of the kidney a thorough understanding of kidney function, and the methods for its testing, is indispensable. It is the topic of *Determination of Kidney Function* which I shall discuss today.

The function of the kidney is to excrete the waste products of the body. These products are formed in the normal process of metabolism. Such products are designated as *metabolites*, or *endogenous* products. It is the function of the kidney to excrete also substances which are not formed in the process of metabolism, various dye-stuffs, drugs and poisons, for instance. Such products are designated as *exogenous*. This function of elimination is to be considered as a true secretion, that is, a vital function which is influenced by the nervous system. While it is thought at present that kidney elimination is a *vitalistic* activity, the laws and factors which determine it have not yet been uncovered to the entire satisfaction of an older faction which still contend that kidney activity may be explained on a physical basis. It will be sufficient here for our purposes to state that the newer work on the kidney has proved that the elimination of a certain substance in the urine is not only dependent upon its concentration in the blood stream, but even to a greater extent upon the concentration of the substance in question, in the body tissues. We thus see that certain—yet obscure—vital phenomena are concerned in kidney secretion or elimination.

In recent literature on this subject one often meets with the speculation whether the kidney has besides its excretory function also an "insecretory" function; in other words, whether the kidney elaborates an internal secretion. I shall not attempt to answer this question at any length. I shall merely mention here the most important facts in support of the theory that the kidney *does* produce an internal secretion. We know, for instance that after cases of double extirpation of the kidney, or in cases of severe mercurial poisoning where the parenchyma of the kidneys are practically entirely destroyed, the development of acetonemia is more rapid and severe than when *anuria* is caused by mechanical causes such as calculus in the ureters, or the twisting of the ureters.

For clinical purposes we are chiefly concerned with the *excretory* function of the kidney and practical methods for testing this function. The eliminative capacity of the kidney may be tested in one of two ways. First, by ascertaining in what manner and time the kidney will get rid of a certain quantity of *endogenous* products, such as water, urea, sodium chloride. Second, by determining the manner and time the kidney will get rid of certain *exogenous* substances, such as lactose,

*Read at the meeting of the South Piedmont Medical Society in Lynchburg, Virginia, April 15, 1924.

iodine, indigo-carmin, phenolsulphonphthalein, and other dye stuffs.

All of us are quite familiar with the method of testing the kidney function with *exogenous* products, particularly with the substance phenolsulphonphthalein. It is not necessary even to mention the technique of the test. It is simplicity itself and this accounts for its widespread use in this country. In criticism of this method of testing kidney function may be said the following:

A. While it is true that phenolsulphonphthalein test will give us an insight into the general functional capacity of the kidney it cannot tell us to what extent the organ will be unable to cope with the elimination of *endogenous* substances, such as urea, salts, water, and other products of normal metabolism.

B. It seems irrational to test the function of any body organ with substances foreign to it. Kidney function should be expressed and interpreted in terms of substances which the organ is called upon to excrete *daily* and *normally*.

C. In testing with *exogenous* products (dye-stuffs), we cannot draw any prognostic and therapeutic inferences from our test as in testing with *endogenous* substances. For instance, when a functional test is made with urea, and the manner and rate of its excretion is determined, we can at once form an idea as to the amount of such substance to be given in the diet; that means that the patient will be advised against a protein rich diet.

It is for the above mentioned reasons that a great many internists in this country and in all European clinics test kidney function with *endogenous* products; that is, with substances which are normally formed in the process of metabolism, and which the kidney is called upon to eliminate as the essential organ of elimination.

In testing the function capacity of the kidney with *endogenous* substances, we may choose one of two methods. First, we may test the kidney under physiological conditions. We see how much of a certain substance which is normally used in the diet is excreted in a certain time. Second, the *endogenous* substance is given in excess of the amount which is usually taken under normal conditions. By this latter method the *reserve* capacity of the kidney is determined.

In order to understand properly the underlying physiological principles of the kidney tests with substances which are normally formed in the process of metabolism, or as we called them for the sake of brevity, endogenous substances, it will be necessary for us to focus our attention on the two main functions of the kidney in as far as they affect and control the elimination of waste products from the system. One of these two main functions is that of *excretion of water*. In order that the waste products of metabolism be excreted, they must be dissolved in water. Without water to keep the *metabolites* in solution, kidney function is inconceivable. The second main function of the kidney is that of *concentration*. It is in this respect that the *vitalistic* function of the kidney is best manifested. The kidney is capable of eliminating substances in a higher concentration than normally found in the blood stream. In other words, in cases where the organism suffers from a deficiency in water, the kidney must still be able to eliminate the waste products. This ability of the kidney is designated in the technical literature on this subject as concentration.

We may therefore summarize the above statements by saying that the functional capacity of the kidney may be tested by the endogenous method in one of two ways: First, in the presence of a normal water supply in the organism we see to what extent the kidney is able to dissolve or dilute the metabolites which are brought to it by the blood stream; second, in the absence of a normal water supply in the organism, we estimate to what degree the kidney is able to *concentrate* the metabolites.

I shall not dwell very long on the technique of carrying out functional kidney tests on the above indicated lines. You will judge that in order to carry out these tests, careful clinical standardization and observation will be necessary. I shall briefly mention a test which is based on the determination of the capacity of the kidney to *dilute* the metabolites; and another test which is based on the determination of the power of the kidney to *concentrate* the metabolites.

Preliminary Steps

Several days before the test, the amount of the urinary output, its specific gravity, and its sodium chloride concentration, is determined. The patient is put on a standard normal diet.

Test

In the morning, within the period of one hour, the patient is given to drink 1 liter (1 quart) of water with a little fruit juice. During the 6 hours following, the amount of urine, specific gravity and salt concentration are determined. During the next 6 hours the same determinations are made every 3 hours. The urine for the remaining 12 hours is also collected and again the same examinations are carried out. The total amount of urine excreted during a 24-hour period is thus examined 6 times.

Results

When the kidneys function normally, the greater amount of water is excreted within the first 2 to 4 hours. In diminished kidney function it will require the whole day to eliminate the amount of water used in the test. Under normal conditions the specific gravity is higher in the first few samples, sinking rapidly in the following samples. Under pathological conditions the sinking of the specific gravity values is less marked.

Concentration Test

A standard concentrated diet is given (in such diet there are no cereals, juices, and fluids). The day and night urine are measured separately and the specific gravity taken.

Result

When the kidneys have a normal capacity to concentrate the metabolites, there is a marked diminution in the amount of the urinary output and a great rise of specific gravity. The specific gravity will be about 1,030 and even higher. When the functional capacity of the kidneys is impaired, the amount of urine will be greater and its specific gravity will rise to only about 1,010.

I shall not mention the other functional tests based on the same principle of excreting such substances which normally are used in our diets. There are a number of methods especially popular in the Continental Clinics which test very finely the *reserve* capacity of the kidney.

Evaluation of Data

In evaluating the data which we may obtain by any functional kidney test, it may be well to keep in mind that the functional capacity of the kidney is closely interwoven with other body functions, such as circulation, and the exchange of metabolic material between the tissues and the blood. Kidney function may temporarily be influenced by disturbances in other organs or systems. The surgeon and urologist will do well to obtain the comprehensive viewpoint of the internist in dealing with any problem affecting the kidney.

Chemical Blood Analysis

Recently, thanks to the development of micro-chemical methods, blood chemistry has been brought within the reach of the private practitioner. There are a great many micro-chemical methods which are supposed to give us an insight into the functional capacity of the kidney. The essential chemical blood tests which concern us here are the determination of the urea and non-protein nitrogen in the blood. But, as with other laboratory methods, the results of chemical blood examinations should be interpreted only in the light of broader clinical knowledge; otherwise, they will be grossly misleading. It is now known, for instance, that the blood content of urea and non-protein nitrogen is dependent not only on kidney activity but also on the nitrogen content of the food, and a rise above the normal level of these substances in the blood may also occur with a perfectly normal kidney. Further, the urea and non-urea nitrogen content of the blood may be depending upon protein destruction within the body itself, such as occurs in many of the infectious diseases.

Conclusion

I am well aware of the fact that my paper falls far short of the subject which was assigned to me. Even the single topic of Determination of Kidney Function is far from being covered. Yet I trust that I have succeeded in pointing out the broader problems of kidney function and to focus attention to the pitfalls of a restricted view on the matter of determining the functional capacity of the kidney.

A NOTE IN REFERENCE TO THE BILE REACTION IN URINE.*

By WILBUR M. BOWMAN, M. D., Petersburg, Va.

Though it is known that a certain number of drugs will interfere with the bile reaction, I have been unable to find in the usual textbooks any mention of the particular behavior

*Written while in Senior class at University of Virginia, School of Medicine.

of iodides. In doing a routine urinalysis on a patient taking potassium iodide, I found that with the modified Gmelin's test for bile, using the filter paper method, a reaction was obtained which might be confused with a positive bile test. Further procedures, however, showed that bile was absent; therefore, I thought it worth while to report the observations made in this connection.

Using the filter paper method, the urine of patients taking potassium iodide gives a reddish brown color with the distinctive green on the periphery. After standing for a few minutes the green gradually fades away and a blue color appears. This latter color becomes particularly intensified on the innermost part of the circle. The experiment performed with a solution of potassium iodide and yellow nitric acid gave the same results. It was found that the greater the concentration of potassium iodide the more pronounced the reddish brown color and the less the green. With a weaker solution the green becomes more prominent and it may be the only color observed at the time. It is to be noted that ordinary filter paper was used with these results. With the highly washed ashless paper there is a tendency to a yellow color on the periphery instead of the green, and the production of a violet instead of a blue color. The latter is probably due to the presence of dextrin. Higher grade paper may give little or no display of colors at all.

A thin layer of urine containing potassium iodide, or a solution of the latter alone, was placed on a white porcelain dish and touched in the center with yellow nitric acid. A reddish brown color appeared immediately in the center with a brilliant yellow on the periphery, but no blue or green. As the central color disappeared the entire drop became bright yellow. The Gmelin's layer test gave results similar to the preceding observation.

Conclusions: When using the filter paper (average grade) method, the urine of patients taking iodides will give a reaction that might be confused with a positive bile test; however, the Gmelin's layer test, porcelain dish test, or Smith's iodine test will aid in interpretating the reaction.

It appears that the blue color is due to the action of the iodine, which is liberated by the acid, on the starchy material in the filter paper; and the reddish brown and yellow colors to the reaction between the nitric acid and the potassium iodide. The combination of this yellow color with the blue gives the distinctive green as seen on the filter paper.

Central State Hospital.

ENDOCRINE RADIATION AS A MEANS OF IMPROVING THE QUALITY AND POWER OF THE SINGING VOICE.

By H. H. RUBIN, M. D., New York, N. Y.

The voice, while not distinctly a secondary sex attraction, as are the horns of a stag, the mane of a lion, the tail of a peacock, or the brilliant color of various tropical or sub-tropical fish, has, nevertheless, a very intimate connection with the mating instinct. In point of fact, the song of the bird, as pointed out by Darwin, has a distinct purpose, this purpose being to attract the favorable notice of its demurely-colored mate. The roar of a lion has much more significance than merely the desire to inspire a certain amount of terror in its intended prey—it is largely a mating call.

Psychologists have noticed that the noisiness of boys in their play increases perceptibly in the presence of little girls, in whom, consciously or unconsciously, they desire to inspire interest. Psychoanalysts will tell us that this interest is essentially a sex interest, although the boy, who may not yet be at the age of puberty, is entirely unconscious of it. However, there is a certain "exultant" note in his whoop, which Freudians classify as a sex call.

It has also been remarked that the blind very frequently are able to form a remarkably clear idea of the physical vigor and condition of a singer by listening to his song. This song does not necessarily need to be a love song, for remember that religious ecstacy and sexual ecstacy are closely akin—in point of fact, are definitely interrelated—under certain conditions as, for instance, in the remarkable abandon of the camp meeting singing among Southern negroes.

Vocal virility is, therefore, not only significant of a manifestation of sex urge, but it is also an index of general health and virility. The reason that the voices of many sopranos crack and become harsh—losing their limpid sweetness—after the menopause, is because a very definite physiological change has taken place in the sex life of the woman, which interferes in a remarkable way with the quality of her vocal tone.

Again, the voices of little boys, as well as girls, to a lesser degree, change at the period

of puberty, losing that high-pitched soprano or falsetto quality, and becoming deep and full. In the Sistine Chapel and other great churches of Italy, where only men and boys are permitted to sing in the choir, the feminized quality of voice in the boy was recognized as an attribute of his lack of sex development. In point of fact, so definitely was this understood, that, until twenty or thirty years ago, emasculation was a very common practice, the intention being to maintain the voice of these boys in its pristine condition. Also, recall the fact that the eunuch not only has a very scanty supply of body hair and beard, but that he also has a high-pitched, hybrid quality of voice. Conversely, removal of or disease of the ovaries often alters a woman's voice, so that it becomes masculine in pitch and rather coarse in quality. These are facts which are known and recognized by all medical men and psychologists, and there can be no doubt as to their general acceptance.

The clinical proof of these facts came to me at first some months ago, more or less as an accident. The first case in which the very remarkable change in voice was noticed, was that of a young woman, whom I was treating for hypo-adrenia and dys-ovarism. This young woman is preparing herself for the concert stage and has a very beautiful quality of voice, which, however, is rather light, so far as volume is concerned.

Following three or four treatments by radi-endocrination, the radiation instrument being placed over the ovaries, and then over the adrenals, she informed me that her teacher, who is one of the most prominent vocal instructors in the city, remarked on the phenomenal increase in the strength of her voice, and in the vibrant quality it seemed lately to possess. This observation was corroborated by the young woman's accompanist and by several musicians who were very well acquainted with her voice and its capabilities.

Within a month, I had occasion to treat four other singers for various endocrine abnormalities, and found that, in every instance, the same striking increase in the virile quality of tone and the power of this tone were noted.

In these cases, I included a short radiation directly over the larynx in the treatment of the hypo-functioning endocrines.

The uniformly favorable results in five cases, "hand running," seemed to place this improvement beyond the domain of mere coincidence.

In point of fact, I am quite convinced that the increase in endocrine tone, brought about by radiendocrine stimulation of the ovaries, must inevitably bring about a more powerful and luscious quality of tone, or, in the case of a man whose gonads are similarly stimulated, a more brilliant and virile quality of voice, this, of course, providing that the woman or the man is subnormal in gonadal development.

In addition to radiating the endocrines, however, a very definite increase in the vocal power follows the radiation of the vocal chords themselves, as the ionization and increased oxidation developed by this stimulation must tend to put the chords in better condition so that they vibrate with increased strength.

It would seem that a very definite degree of rejuvenation is possible in the case of singers like Geraldine Farrar, who are at the climacteric, or possibly, beyond it, or who may have exhausted a certain degree of their virility by the expenditure of more nervous energy than they had been able to manufacture out of their food.

Women who present this symptom-complex may logically expect to derive a very considerable benefit from this newer method of radiation, and from the increased ionization and oxidation which it brings about.

310 *West 85th Street.*

Analyses, Selections, Etc.

Discussion of the Treatment of Neurosyphilis.

The author lays down certain principles leaving them for discussion later. They are:

"(1) No distinction can be drawn between the interstitial and parenchymatous varieties of neurosyphilis in so far as the principle governing their preventive and curative treatment is concerned; they both afford evidence of an active process in the nervous system provoked by the presence of the *Spirochaeta pallida*.

"(2) The prevention of neurosyphilis must depend on the complete eradication of the spirochete from the bodies of infected persons or, alternatively, the continued abeyance of its activities. Although the first desired result has no doubt been attained by treatment, we have never had reliable data on which to base the opinion that any particular individual has been cured of syphilis.

"(3) If these two statements are accepted,

we are never justified in assuring a patient that he is cured of syphilis, even if 10, 20, or 30 years without signs of the disease being manifest have elapsed since the date of the infection. On the contrary it is our duty to advise all patients who have been infected to continue with intermittent treatment for the rest of their lives."

That periodic courses of treatment year after year will prevent the development of neurosyphilis has yet to be proved, but it is significant that patients who neglect the treatment of the primary infection often develop nervous manifestations at an early date, and that in those patients who are subjected to thorough treatment for several years to begin with, the cerebral and spinal complications are often long delayed.

The appearance of neurosyphilis in any form must be admitted as evidence of failure in the attempt to cure primary syphilis.

A positive Wassermann reaction is sometimes a valuable piece of confirmatory evidence. A negative reaction is almost without value, but unfortunately has become so highly credited that it is a direct menace to proper treatment.

The author is confident that the treatment of tabes is attended by satisfactory results, and is hopeful that early and prolonged treatment of general paralysis may arrest the progress of the disease and functional disorders be improved.

Speaking of the contraindications to antisyphilitic treatment, the author declares great caution is required with patients suffering from advanced cardiovascular changes, especially in relation to intravenous injections. Albuminuria is not in itself a contraindication to mercury or arsenic, but renal inefficiency, rather than albuminuria, must be regarded as the contraindication. Optic atrophy is no longer considered a contraindication; in fact some cases have been found to benefit when treated with mercury and arsenic.—(*E. Farquhar Buzzard. Proc. Roy. Soc. Med., London*, 1923, *XVI, Section of Neurology*, 61.

Discussion

H. MacCormac: Syphilis of the central nervous system in its early stage is curable; remedies introduced into the blood stream in the ordinary course of treatment have a full curative effect on disease of the central nervous system. Here the disease in an early stage is being dealt with, where the general rule as to its curability holds good even for the central nervous system.

In the treatment of late stages of infection of the central nervous system, there is the same difficulty in altering the Wassermann reaction as is found in late syphilis generally. Little benefit can be expected in parenchymatous disease and, therefore, efforts should aim at relieving interstitial disease. The question is complicated by the physiological peculiarities of the cerebrospinal fluid and the difficulties of affecting it by intravenous medication. Nevertheless, the effect of intravenous medication in neurosyphilis in the early stages of the disease is favorable, and there is no reason to believe that in the later stages the interstitial tissue may not receive benefit from intensive intravenous medication. This beneficial effect is found to occur in syphilitic interstitial keratitis. Here a tissue completely free from blood vessels, except when acutely inflamed, may be profoundly influenced through the general blood stream. If antisubstances produced by intravenous medication can reach such a tissue through the blood, it is not difficult to believe that the central nervous system can also be profoundly influenced through the general blood stream.

Spinal drainage is not recommended. Where the intention is to carry "antisubstances" into the cerebrospinal fluid this procedure appears to be logical, but if the intention is to introduce arsenic, the operation is open to criticism. The introduction of salvarsanized serum into the cerebrospinal fluid is open to the same criticism for it has been shown that the 606 and 914 compounds have no direct action on the *Spirochaeta pallida*, but that they act through the tissues indirectly by causing them to elaborate the "antisubstance." It is not clear how these antisubstances can be produced by the introduction of minute quantities of arsenical substance into the cerebrospinal fluid, a situation not particularly favorable to their elaboration.

It may be argued that the serum taken from patients by the Swift-Ellis method contains a potent antisubstance. The speaker cites his own experience: "At one time I injected the serum taken from patients with secondary syphilis undergoing intensive arsenical treatment into certain untreated patients, and in no case could I observe any effect on the disease by these methods. As such serum presumably containing antibodies had little or no effect on

secondary cutaneous eruptions it is unlikely to benefit the lesions of neurosyphilis when introduced into the cerebrospinal fluid."

It is the speaker's belief that the results reported following intraspinal treatment are in reality delayed improvement due to the previous intravenous medication.

Sir James Purves-Stewart: The intracisternal treatment of cases of general paralysis was discussed. The treatment consists of the injection of salvarsanized serum into the cisterna magna, the beneficial actions being probably due not to the infinitesimal amount of salvarsan the injected substance contained, but to the antibodies evoked in the serum of the patient.

With regard to the technic of cisternal puncture, the skull is entered through the atlanto-occipital ligament, which brings the operator to the cisterna magna. The floor of the fourth ventricle is in front. There is a space extending to a depth of ½ to ¾ in., a space of safety within the cistern. The needle is directed at the proper angle through the atlanto-occipital ligament. The salvarsanized serum is rapidly absorbed. Some passes down the spinal canal, but most of it circulates forward along the basilar cistern, and ultimately bathes the whole cortex, becoming reabsorbed through the capillaries of the cortex.

In the speaker's experience general paralytics improved under the treatment to some extent though some show no improvement, but they did not get back to the negative Wassermann reaction. He had never yet seen a general paralytic in whom the Wassermann reaction had been rendered negative in the cerebrospinal fluid, though he had seen many instances of that disease in which the cell content had fallen to normal.

L. W. Harrison: The number of cases of neurosyphilis might be considerably decreased if in every case of syphilis the cerebrospinal fluid were examined some years after the original infection.

MacCormac's view that a positive Wassermann reaction indicated activity of the spirochete coincided with Harrison's opinion.

The theory of two different strains of the spirochete seems untenable.

The speaker has found that patients suffering from cardiovascular disease tolerate salvarsan.

Treatment with arsenobenzol as well as mercury should be continued for two years.

With regard to intrathecal therapy, he has seen some apparently good results from this when the intravenous method has not seemed to lead to much progress. He is, however, rather sceptical as to the effect being due to the specific action of the remedy introduced intrathecally. He has seen symptoms alleviated by mere lumbar puncture, and he had never been able to convince himself whether with intrathecal injections this was due to the specific action of the remedy on the parenchyma, or simply to the disturbance that took place as a result of the lumbar puncture. He remembers two cases in which there was a very definite effect from lumbar puncture without anything else being done. Both were cases of tabes with paralysis of the bladder, and in both the control of the bladder had returned 12 hours after the puncture.

Henry Head: The question was raised, was not the reaction (after injection with a mercurialized serum) really due to protein shock? Was not the mercury made innocuous by forming an albuminoid in the serum?

G. Riddoch: Treatment should be continued not only until symptoms have disappeared or diminished, as far as possible, but also at least until the tests (Wassermann reaction and lymphocytosis in the cerebrospinal fluid) have become negative or improvement in them has definitely stopped. The various tests should be used not only for diagnostic purposes, but also as indications of the efficacy of treatment.

C. P. Symonds: The use of large dosages of arsenic is questioned. The speaker had noted severe reactions as a consequence. With regard to the Wassermann reaction in neurosyphilis, he agreed with what Dr. Buzzard said: One might find actively progressing tabes with a negative Wassermann reaction in both blood and cerebrospinal fluid.

A. Feiling: A negative Wassermann reaction in the blood is often found in syphilis of the central nervous system, and it is not uncommon to find cases of undoubted syphilis of the nervous system in which the patient's cerebrospinal fluid also was absolutely normal.

The speaker objects to the repeated large doses of salvarsan which had been recommended.

Wilfred Harris: The Wassermann reaction in neurosyphilis is of comparatively little value.

Salvarsan is preferred to the other arsenical preparations, or the substitute kharsivan.

There is a distinct field for intrathecal injection, especially in the treatment of tabes. In cases exhibiting the group of clinical phenomena called general paralysis of the insane, the speaker had seen very little good result with intrathecal autoserum, but he is carrying out the pyrexial treatment in three cases, but he does not feel bold enough to inject active malaria into a syphilitic patient. He has been using anticatarrhal vaccines, and one case of general paralysis of the insane he has treated in that way has become much improved, though intravenous salvarsan and intrathecal serum had been employed without much benefit. The other two were also distinctly improved mentally.

E. Farquhar Buzzard: With regard to Sir James Purves-Stewart's work on cisternal injections, he feels that the danger of the operation is too great, and the cases cited were ones which would be expected to react favorably to intravenous and intramuscular injections.

H. MacCormac (in reply): Toxic effects from large doses were not common in his experience; arsenical dermatitis and jaundice did occur but were not confined to cases in which heavy dosage had been given.

The form of treatment recommended—a preliminary course of salvarsan followed by two years' mercurial administration—had been carried out in the Middlesex Hospital Clinic since 1912 and the results had been most satisfactory.

The speaker insists that where the negative reaction in the blood and cerebrospinal fluid is maintained over a number of years there would appear to be good reason to believe that cure had been established.

Miscellaneous

THE COMING MEETING OF THE MEDICAL SOCIETY OF VIRGINIA.

Points of Professional Interest to be Seen in Staunton.

By CHARLES MINOR BLACKFORD, M. D., Staunton, Virginia.

There are two institutions located in Staunton which will prove of unusual professional interest to physicians who are keeping abreast with the constantly widening field of medical work, and the coming meeting of the Medical Society of Virginia will give an opportunity for direct observation of two great State establishments that are working along lines which are steadily becoming of more importance to medical practitioners. The tremendous growth of the public schools throughout the country has brought about a study of the physical and mental conditions of school children which has already produced wonderful results and which promises to produce still greater ones in the future. Every physician is being thrown more and more into contact with these problems, and an opportunity to see the modern methods of handling them in actual operation is by no means to be ignored.

For centuries the child who made slow progress in studies has been considered as merely lazy and was punished accordingly. Fortunately the days when "reading and writing and 'rithmetic" were "taught to the tune of a hickory stick" have passed away, and the child who does not rise from grade to grade is now being carefully examined to find the cause of the failure. Defects in sight and hearing, mental deficiency and physical degeneracy have been found responsible for many such cases, and intelligent school authorities now remedy these defects so far as may be practicable instead of cowing and frightening the victims into still more marked deficiencies. Investigations into the mentality of public school pupils have shown how widespread subnormal or abnormal mental conditions are and the school physicians in the rural districts as well as in the cities find themselves confronted by conditions for which their college courses did not prepare them and which would not have arisen in the ordinary routine of practice. The changing attitude of the courts in regard to the insane criminal and the widening range of what is considered insanity, bring to the medical man of today questions which are beyond the limits of his previous experience, but which are of the greatest importance as affecting his own professional standing as well as the life or liberty of some other person. Few practising physicians have any experience with mental diseases, and few encounter enough cases to be enabled to recognize the early symptoms of mental disorder, so that in many, if not most, instances the patient gets beyond the stage in which remedial action is most efficacious before the true condition is discovered. Even when insanity is suspected, the patient is apt to be com-

mitted to some institution which specializes on mental affections, or to be regarded as "queer," and have no further notice paid him until some deed on the patient's part requires immediate action. In either case the practising physician gives the patient but little attention, and the patient either goes from bad to worse or passes beyond the observation of the physician who has gained no additional experience from the short period of observation.

For this reason an opportunity of going through the great Western State Hospital and being shown typical cases of the various forms of mental abnormality by skilled and experienced alienists is too important to be neglected by a modern physician. The Western State Hospital was established by an act of the Legislature in 1827, when an institution was founded under the name of "The Western Lunatic Asylum" and ordered to be located in Staunton. The name was changed to "The Central Lunatic Asylum" when a similar institution was established at Weston, in what is now West Virginia, and this name was borne until West Virginia became a separate State, when the Staunton establishment resumed the name of the Western Lunatic Asylum. Some thirty years ago, on the suggestion of Dr. Benjamin Blackford, then Superintendent of the Staunton asylum, the Legislature changed the names of the State institutions for the insane from "Lunatic Asylums" to "State Hospitals," and this one became the Western State Hospital, a name which it has retained to the present time.

The history of the Western State Hospital has been singularly free from exciting incidents and, even during the Civil War, when the Valley was the victim of widespread desolation, Augusta County was but slightly injured. The battle of Piedmont was the only conflict which occurred within its limits, but in June, 1864, the Hospital was the victim of a dastardly outrage on the part of General Hunter. On reaching Staunton, Hunter and his forces entered the grounds of the Hospital and, although Dr. Francis T. Stribling, then the Superintendent, explained to the General the character of the institution, he was not moved to mercy. If there be any place which a humane or even a civilized military commander should consider sacred from molestation, it is one set apart for the shelter of sufferers from the most piteous malady to which the human race is subject, but such considerations did not move General Hunter. Dr. Stribling had accumulated with great difficulty a scanty supply of food and clothing for the inmates under his care and, discovering this fact, General Hunter seized these stores. Instead of using them for the troops under his command, which would have enabled him to plead military necessity in palliation of the deed, he had them taken to the banks of Lewis' Creek and burned, thereby inflicting hunger and nakedness on hundreds of helpless men and women. A more inexcusable act than this cannot be found in the annals of civilized warfare. In his report for 1864, Dr. Stribling states that the soldiers did not enter the wards, but he says that this was due rather to the personal consideration of the individual soldiers than to any orders from the officers. It is likely that the general fear of the insane, which is prevalent among the laity, was an equally potent factor in this act of kindliness.

Since the Civil War the Western State Hospital has steadily advanced in methods of treatment and in numbers of patients. At the present time there are about 2,100 patients on the rolls, though many of them are absent on furlough. Dr. Joseph S. DeJarnette, the present Superintendent was appointed an assistant physician in the Hospital in 1889, and succeeded the late Dr. Benjamin Blackford as Superintendent after the death of Dr. Blackford in 1905. He is widely known as an alienist, and he will conduct a clinic at the Hospital during the meeting of the Society, in which cases illustrating the typical forms of mental derangement will be shown to the physicians who care to attend it.

The Virginia School for the Deaf and Blind will prove of great interest to the visiting members of the Medical Society of Virginia. It is not generally known that the first school for the deaf in America was established in Virginia, but in the lobby of the main building of the school in Staunton is a tablet bearing a bas-relief of a simple, old fashioned house and the following inscription:

"COBB'S"
The First School for the
Education of the Deaf in America.

In the year 1812
COLONEL WILLIAM BOLLING
Established a School for the Deaf at h's Home
"Cobb's"
Near Petersburg, Virginia, which was Taught by
John Braidwood of the famous Braidwood School
of Edinburgh, Scotland.

This Tablet was Erected by
The Virginia Association of the Deaf
1923.

In 1838 the General Assembly of Virginia passed an act providing for the establishment of an institution for the education of the deaf and blind, and authorizing the appointment of a Board of Visitors who were charged with the erection of suitable buildings and the general management of the school. The site selected was in a grove of fine old oaks and elms on the eastern limits of Staunton, and few public institutions present a more charming sight to visitors than does this great establishment. The school was opened in rented quarters in 1839 with only five pupils in attendance on the opening day.

At the present time white children of sound minds and between the ages of seven and twenty years, whose hearing or vision is too defective to permit profitable attendance on the public schools, are received and are furnished tuition, board, home care and medical attention free of charge. The parents or guardians of the children are expected to pay for their transportation between their homes and the school and to furnish all necessary clothing. The Superintendent, Mr. H. M. McManaway, will receive the members of the Medical Society who may visit the school, will show them through the institution and will explain the methods of instruction used with these unfortunate children. As the Society meeting takes place soon after the opening of the session, the classes of beginners will be in process of formation, and the demonstration of the modes in which education is brought to minds whose usual channels of communication are closed, will be of unusual interest.

The Truth About Medicine

In addition to the articles enumerated in our letter of April 26th, the following have been accepted:

Abbott Laboratories
Neutral Acriflavine-Abbott, for Intravenous Injection, 0.1 Gm. Ampules.

Hoffmann La Roche Chemical Works
Digalen-Roche (Cloetta)
Ampules Digalen-Roche (Cloetta), 1.1 Cc.
Tablets Digalen-Roche (Cloetta).
Hypodermic Tablets Digalen-Roche (Cloetta).

Lederle Antitoxin Laboratories
Pollen Antigens-Lederle.
Giant Ragweed Pollen Antigen-Lederle; Green Sage Pollen Antigen-Lederle; Lamb's Quarters Pollen Antigen-Lederle; Marsh Elder Pollen Antigen-Lederle; Olive Pollen Antigen-Lederle; Pasture Sage Pollen Antigen-Lederle; Southwestern Ragweed Pollen Antigen-Lederle; Western Water Hemp Pollen Antigen-Lederle; Western Ragweed Pollen Antigen-Lederle.

Mead Johnson and Co.
Mead's Powdered Protein Milk.

Ohio Chemical and Mfg. Co.
Ethylene for Anesthesia.

E. R. Squibb and Sons
Pollen Allergen Solutions-Squibb.
Annual Salt Bush Pollen Allergen Solution-Squibb; Arizona Ash Pollen Allergen Solution-Squibb; Arizona Cottonwood Pollen Allergen Solution-Squibb; Arizona Walnut Pollen Allergen Solution-Squibb; Ash Pollen Allergen Solution-Squibb; Black Mulberry Pollen Allergen Solution-Squibb; Bermuda Grass Pollen Allergen Solution-Squibb; Black Walnut Pollen Allergen Solution-Squibb; Brome Grass Pollen Allergen Solution-Squibb; California Black Walnut Pollen Allergen Solution-Squibb; Careless Weed Pollen Allergen Solution-Squibb; Cedar Pollen Allergen Solution-Squibb; Cocklebur Pollen Allergen Solution-Squibb; Corn Pollen Allergen Solution-Squibb; Dark Leaved Mugwort Pollen Allergen Solution-Squibb; False Ragweed Pollen Allergen Solution-Squibb; Hickory Pollen Allergen Solution-Squibb; Johnson Grass Pollen Allergen Solution-Squibb; June Grass Pollen Allergen Solution-Squibb; Lamb's Quarters Pollen Allergen Solution-Squibb; Marsh Elder Pollen Allergen Solution-Squibb; Nettle Pollen Allergen Solution-Squibb; Oak Pollen Allergen Solution-Squibb; Mugwort Pollen Allergen Solution-Squibb; Orchard Grass Pollen Allergen Solution-Squibb; Pigweed Pollen Allergen Solution-Squibb; Pine Pollen Allergen Solution-Squibb; Poplar Pollen Allergen Solution-Squibb; Ragweed Pollen Allergen Solution-Squibb; Rye Pollen Allergen Solution-Squibb; Sagebrush Pollen Allergen Solution-Squibb; Sandbur Pollen Allergen Solution-Squibb; Shadscale Pollen Allergen Solution-Squibb; Sheep Sorrel Pollen Allergen Solution-Squibb; Slender Ragweed Pollen Allergen Solution-Squibb; Sweet Vernal Grass Pollen Allergen Solution-Squibb; Timothy Pollen Allergen Solution-Squibb; Western Ragweed Pollen Allergen Solution-Squibb.

Wilson Laboratories
Desiccated Parathyroid Substance-Wilson,
Tablets Desiccated Parathyroid Substance-Wilson, 1/20 grain.
Tablets Desiccated Parathyroid Substance-Wilson, 1/10 grain.

NEW AND NONOFFICIAL REMEDIES

Cryogenine—Phenylsemicarbazide.—Cryogenine is an antipyretic and analgesic. It is claimed that cryogenine does not affect digestion and that it has scarcely any effect on the circulation and respiration. Cryogenine is claimed to be useful as an antipyretic in febrile conditions. As an analgesic, it is said to be of value in rheumatism, headache, sciatica, gout and in painful conditions generally. Cryogenine is marketed in the form of powder and 0.5 Gm. tablets.

Neoarsphenamine-Mallinckrodt.—A brand of neoarsphenamine—N. N. R. For a discussion of the actions, uses and dosage of neoarsphenamine, see New and Nonofficial Remedies, 1924, p. 40. Neoarsphenamine-Mallinckrodt is marketed in ampules containing, respectively, 0.15, 0.3, 0.45, 0.6, 0.75, 0.9 and 1.5 Gm.

Iletin (Insulin-Lilly) U-40.—Each ampule contains 40 units of Iletin (Insulin-Lilly) (see New and Nonofficial Remedies, 1924, p. 152). (Jour. A. M. A. May 3, 1924, p. 1443).

Ethylene for anesthesia.—*Aethycnum pro Narcosi*—It contains not less than 98 per cent, by volume of ethylene. Trials on human subjects have confirmed the anesthetic and analgesic value of ethylene as demonstrated on animals. Deep surgical anesthesia is stated to be produced easily and analgesia comes on readily and apparently long before surgical anesthesia is established. Given with oxygen, it has been found more powerful than nitrous oxide for animals and man, and in most cases as effective as ether. Trials indicate that ethylene is of value for the production of surgical anesthesia, and that it has advantages over nitrous oxide. Ethylene for anesthesia is supplied in the compressed state in metal cylinders. To avoid accidental explosion, ethylene must not be brought in contact with a naked flame or an electric spark. Ohio Chemical and Mfg. Co., Cleveland. (Jour. A. M. A., May 17, 1924, p. 1609).

Desiccated parathyroid substance-Wilson.—The exterior parathyroids of the ox, freed from fat, cleaned, dried and powdered. For a discussion of the actions and uses of parathyroid gland, see New and Nonofficial Remedies, 1924, p. 224. Desiccated parathyroid substance-Wilson is marketed in the form of powder and in tablets containing, respectively, 1/20 grain and 1/10 grain. Wilson Laboratories, Chicago. (Jour. A. M. A., May 24, 1924, p. 1693).

Mead's powdered protein milk.—A milk preparation having a relatively high protein content and a relatively low carbohydrate content. Each 100 Gm. contain approximately protein 37 Gm., butter fat 31 Gm., free lactic acid 3 Gm., lactose 19 Gm., and ash 4.6 Gm. When suitably mixed with water, powdered protein milk is said to be useful for correcting intestinal disorders of infants and children. Mead Johnson and Co., Evansville, Ind.

Pollen Antigens-Lederle.—In addition to the products listed in New and Nonofficial Remedies, 1924, p. 252, the following have been accepted: Giant Ragweed Pollen Antigen-Lederle; Green Sage Pollen Antigen-Lederle; Lamb's Quarters Pollen Antigen-Lederle; Marsh Elder Pollen Antigen-Lederle; Olive Pollen Antigen-Lederle; Pasture Sage Pollen Antigen-Lederle; Southwestern Ragweed Pollen Antigen-Lederle; Western Water Hemp Pollen Antigen-Lederle; Western Ragweed Pollen Antigen-Lederle. Lederle Antitoxin Laboratories, New York.

Pollen allergen solutions-Squibb.—In addition to the products listed in New and Nonofficial Remedies, 1924, p. 251, the following pollen allergen solutions-Squibb are marketed in packages of two tubes diagnostic solution; in packages of six tubes (assorted) diagnostic solution; in 5 Cc. vials for treatment only: Annual Salt Bush Pollen Allergen Solution-Squibb; Arizona Ash Pollen Allergen Solution-Squibb; Arizona Cottonwood Pollen Allergen Solution-Squibb; Arizona Walnut Pollen Allergen Solution-Squibb; Ash Pollen Allergen Solution-Squibb; Black Mulberry Pollen Allergen Solution-Squibb; Black Walnut Pollen Allergen-Squibb; Brome Grass Pollen Allergen Solution-Squibb; California Black Walnut Pollen Allergen Solution-Squibb; Careless Weed Pollen Allergen Solution-Squibb; Cedar Pollen Allergen Solution-Squibb; Cocklebur Pollen Allergen Solution-Squibb; Corn Pollen Allergen Solution-Squibb; Dark Leaved Mugwort Pollen Allergen Solution-Squibb; False Ragweed Pollen Allergen Solution-Squibb; Hickory Pollen Allergen Solution-Squibb; Johnson Grass Pollen Allergen Solution-Squibb; Lamb's Quarters Pollen Allergen Solution-Squibb; Marsh Elder Pollen Allergen Solution-Squibb; Nettle Pollen Allergen Solution-Squibb; Oak Pollen Allergen Solution-Squibb; Pigweed Pollen Allergen Solution-Squibb; Pine Pollen Allergen Solution-Squibb; Poplar Pollen Allergen Solution-Squibb; Rye Pollen Allergen Solution-Squibb; Sandbur Pollen Allergen Solution-Squibb; Shadscale Pollen Allergen Solution-Squibb; Sheep Sorrel Pollen Allergen Solution-Squibb; Slender Ragweed Pollen Allergen Solution-Squibb; Sweet Vernal Grass Pollen Allergen Solution-Squibb.

The following pollen allergen solution-Squibb are marketed in packages of two tubes diagnostic solution; in packages of six tubes (assorted); in treatment sets consisting of, Set A: ten vials containing consecutive doses (Nos. 1 to 10, inclusive); Set B: five vials containing consecutives doses (Nos. 1 to 5, inclusive); Set C: five vials containing consecutive doses (Nos. 6 to 10, inclusive); Set D: five vials of dose No. 10: Bermuda Grass Pollen Allergen Solution-Squibb; June Grass Pollen Allergen Solution-Squibb; Mugwort Pollen Allergen Solution-Squibb; Orchard Grass Pollen Allergen Solution-Squibb; Ragweed Pollen Allergen Solution-Squibb; Sagebrush Pollen Allergen Solution-Squibb; Timothy Pollen Allergen Solution-Squibb; Western Ragweed Pollen Allergen Solution-Squibb. E. R. Squibb and Sons, New York. (Jour. A. M. A., May 31, 1924, p. 1781).

PROPAGANDA FOR REFORM

Radium and Radium Emanation.—Radium is commonly supplied in the form of radium salts enclosed in containers. Also, tubes containing radium emanation are available. Salts of radium disintegrate at a rate so that 1,780 years elapse before the compound loses one-half of the initial activity. On the other hand, radium emanation loses about 0.75 per cent of its activity each hour, and consequently, its activity is practically *gone after one month.* (Jour. A. M. A., May 3, 1924, p. 1462).

Liposan.—According to the advertising Liposan is "a Vegetable Lipoidal Solution" which has chaulmoogra oil as its "medicinal element." Liposan is claimed to be "indicated" in "Abcesses," "Acne," "Anaemia," "Arthritis," "Agitans," "Boils," "Bubo," "Cancer," "Chorea," "Cystitis," "Eczema," "Erysipelas," "Furunculosis," "Herpes," "Hemiplegia," "Ivy Poisoning," "Myalgia," "Neuralgia," "Neuritis," "Peritonitis," "Pyorrhoea," "Infantile Paralysis," "Pneumonia," "Rheumatism," "Synovitis," "Syphilis," "Salt Rheum," "Tubercule," "Tonsillitis," "Ulcerations (Indolent)," "Varicositis." The proprietors, Hoffman and Hicks, have not requested an examination of Liposan by the Council on Pharmacy and Chemistry, and so far the A. M. A. Chemical Laboratory has not examined the product. A physician will be justified in his refusal to accept the unproved claims of the manufacturer. He might be justly criticized were he to administer intravenously a product which, so far as he knows, is unstandardized and of wholly questionable value. (Jour. A. M. A., May 3, 1924, p. 1462).

Silica In Tuberculosis.—Compounds of silica have found a place during recent years among drugs of reputed value in the treatment of tuberculosis. In view of their extreme insolubility, one would scarcely expect them to exert any immediate pharmacodynamic effect. Nevertheless, there is evidence that silica finds its way into the tissues and organs and remains deposited, notably in connective tissues. This has given rise to the hypothesis that the element plays a part in determining the elasticity and tensile strength of fibrous tissues, although the smallness of the quantities of silica ordinarily found should make one extremely skeptical of the validity of any conclusion of this sort. Nevertheless, various silica-containing teas or drugs have been recommended in the hope that they would increase the amount or improve the quality of the connective tissue that forms the defense about tuberculous lesions. A study at the Sprague Institute in Chicago by Maver and Wells brought nothing but negative results through the administration of silica preparations to

tuberculous animals. (Jour. A. M. A., May 17, 1924, p. 1610).

Bacillus Acidophilus Therapy.—Through the use of Bacillus acidophilus cultures a transformation of the intestinal flora of man from a proteolytic to an aciduric type can generally be induced. In cases of constipation beneficial effects in the direction of more ready defecations are said to arise. Bacillus acidophilus milk has attained the dignity of tentative recognition by the Council on Pharmacy and Chemistry, though this must not be interpreted as a recommendation for the use of the product. Bearing on the question of how Bacillus acidophilus milk acts, experiments have been made which indicate that the action is a strictly bacteriological one, and not physical or chemical. It was found that Bacillus acidophilus milk from which the bacteria have been removed was practically without effect in its influence on constipation. Regular Bacillus acidophilus milk ingested subsequently resulted in an increase in the number of defecations. (Jour.. A. M. A., May 24, 1924, p. 1696).

Insulin and Ketosis.—Ketosis is not confined solely to cases of diabetes. It is an accompaniment of carbohydrate starvation, however produced. Acidosis is not infrequently found in preoperative or postoperative conditions, owing to enforced deprivation of food for one reason or another. It is found accompanying so-called toxic vomiting, sometimes particularly in the persistent type seen in pregnancy. Attention has been called to the use of insulin in the treatment of nondiabetic acidosis. The alleviation of this condition through the administration of glucose by rectum or parenterally has been demonstrated. More prompt success has been reported through the combined use of insulin hypodermically and glucose intravenously. While the treatment gives promise, it is not free from danger. Insulin therapy demands care in the case of a diabetic patient. Doubly great is the need of intelligent precaution with the nondiabetic patient. (Jour. A. M. A., May 24, 1924, p. 1695).

Tersul-Hiller Not Acccpted for N. N. R.—The Council on Pharmacy and Chemistry reports that Tersul-Hiller (Robert Wollheim, distributor), is a German preparation of silicon and calcium proposed as "An Adjuvant to the Treatment of Tuberculosis, Rachitis, etc." Physicians are told that Tersul-Hiller is: "Composed essentially of coincidently water-soluble silica and water-soluble calcium salts as shown by the following approximate percentage formula: Silica (new process) 4½ gr., Calcium lactate 7½ gr., Calcium hypophosphate ¾ gr., Calcium phosphate 7½ gr., Calcium fluorid 1½ gr., Calcium carbonate 60 gr., Magnesium phosphate 3 gr., Milk sugar 15 gr." From this formula it would appear that Tersul-Hiller is a mixture containing a silica compound of undeclared composition and a mixture of soluble and insoluble calcium compounds—chiefly calcium carbonate. The Council found Tersul-Hiller inadmissible to New and Nonofficial Remedies because (1) there is no acceptable evidence for the therapeutic use of silica preparations; (2) the identity of the silica compound is not declared; (3) the use of the mixture is irrational, and (4) the claims for its therapeutic effects are unwarranted. (Jour. A. M. A., May 24, 1924, p. 1712).

San-I-Sal.—Newspaper advertisements have appeared during the past month or two advising the obese public of "A Guaranteed Way to Take Off Two to Five Pounds in One Bath." The product advertised is "San-I-Sal, the Pine Hot Springs Bath." It is sold by the San-I-Sal Laboratories, Washington, D. C. The advertising claims are typical of "patent medicine" obesity cures. According to the specifications of a patent granted by the U. S. Patent Office, the "invention" is said to relate to "a composition of matter for producing a medicated bath of particular value in the treatment of obesity." The "composition" is stated to be: epsom salt 90 per cent., baking soda 2 per cent., table salt 5 per cent., Canada balsam 2 per cent., oil of pine needles 1 per cent. The specifications also declare that the substance used in the bathing water has been found to afford "great relief in cases of inflammatory rheumatism and ailments of a similar character." That a mixture of epsom salt, baking soda and table salt with a small quantity of Canada balsam and oil of pine needles should be granted a patent by the U. S. Patent Office as a new and useful invention, makes one wonder just how much intelligence on medical subjects there is displayed by the Patent Office. (Jour. A. M. A., May 31, 1924, p. 1800).

Proceedings of Societies

Alexandria Medical Society Reorganizes.

Recently, the doctors of Alexandria, Va., met and decided to reorganize their local society, and to hold meetings at Alexandria Hospital on the first Tuesday night of each month. Dr. M. D. Delaney was elected president, Dr. F. M. Dillard vice-president, and Dr. W. C. West secretary-treasurer.

Powhatan County Medical Society Reorganizes.

Physicians of Powhatan County met at the Court House on June 5th, and reorganized that County Medical Society, with Dr. T. S. Hening, Jefferson, as president, Dr. R. D. Tucker, Powhatan, vice-president, and Dr. J. E. Tilman, Rock Castle, secretary. Dr. T. S. Hening was appointed delegate to represent the Society at the Southside Virginia Medical Association on June 17th.

Drs. R. D. Tucker and T. S. Hening went as delegates from Powhatan County to the State Democratic Convention held in Norfolk early in June.

Surry County Medical Society.

This Society held a meeting on June 10th, the first in some months, and elected Dr. E. M. Easley, Bacons Castle, president; Dr. J. H. Parker, Dendron, secretary; Dr. W. L. Devany, Dendron, treasurer. Dr. W. W. Seward, Surry, was elected delegate to the Staunton meeting of the Medical Society of Virginia.

The Southside Virginia Medical Association

Held its regular quarterly meeting at Victoria, June 17th, under the presidency of Dr. George H. Reese, of Petersburg. Dr. R. L.

Raiford, Sedley, is secretary. Attendance was good and an interesting scientific program was given.

Upon call of the Fourth District Councilor, Dr. Thos. G. Hardy, of Farmville, delegates from the County Medical Societies in this District held a meeting to nominate his successor, Dr. Hardy's term of office expiring at the Staunton meeting. Dr. W. D. Kendig, Kenbridge, was nominated.

American Medical Association Meeting in Chicago.

Three hundred and fifty thousand daily visitors is the claim of the great western city, Chicago. Incidentally, these visitors are used as leverage for demanding 10,000 additional cubic feet of water a second from the great lakes, to which other cities, like Milwaukee, and the Canadian users of beverage and power, are objectors.

Of these strangers within the gates, 7,819 are registered with the seventy-fifth annual session of the American Medical Association, an attendance 1,200 greater than ever before. In contrast between music and medicine, 20,000 are in Chicago for the programmes of the Saengerfest. With these, and half-a-dozen more gatherings, the hotels are filled to capacity.

For our daily delectation three chief subjects occupy the journalistic front pages, the Leopold-Loeb murder, the Republican convention at Cleveland, and the local assemblage of physicians and surgeons. Curiously enough each is day-by-day treated from a medical standpoint; psycho-analysis and endocrinology are to furnish the defense of the youthful, degenerate "killers"; Dawes, vice-presidential nominee, declares the country needs "'truth rather than sugared cure-all"; "if we are sick we cannot be healed by the sweet promises of quack demagogues." In addition, Dr. Pusey, retiring A. M. A. president, yokes up medicine and the nation as both requiring individual initiative at present,—the old-time family doctor versus hospitals, group-medicine and specialists?

The conclusions have been strongly reached at this time as to endocrinal rejuvenation; "All the glands of all the animals that sailed the high seas for forty days and forty nights with Noah cannot increase the span of life nor bring youth to old age;" (which again touches perhaps on the Republican convention).

The dermatalogists pronuonce forcibly upon the dangerous results of $300,000,000.00 yearly expenditure for cosmetics containing mercury, arsenic, lead and paraphenylendiamin. (The last word should hold the female population for a while).

Prohibition too is discussed—at Chicago and Cleveland. At both one could hear insinuations as to "why members of conventions leave home." Resuscitation, from alcoholism, electric shock, gas—all of which are in vogue, politically at least—is an interesting subject in the section of pharmacology.

The scientific work of the Association, programme and abstracts, fills a book of one hundred and ninety pages, and is as fascinating as a three-ring circus, and as confusing as a county fair. One would like to be everywhere at once. But there are certain great names and high-lights which draw the most moths; on the other hand, there is no flower too modest to be the source of honeyed knowledge.

No one makes a mistake by entering any of the partitioned divisions of the mile-long Municipal Pier—except the restaurant, which is popular but inadequate. It is a subject of wonder how any town without such a structure as the Pier can conveniently house the variety of meetings and exhibits which we find here.

A few instances and illustrations of the entertainment which keep the wandering boys in a big town out of mischief, selected seriatim: A preliminary report by Dr. Seale Harris—"Since there is *hypo-insulin* in diabetes, it is probable that *hyper-insulin* also occurs"; "Sickle-cell anemia"; Oxids of nitrogen in wound infections; Dr. W. L. Brown, of El Paso, on Post-operative treatment by duodenal tube and heat; Crile of Cleveland on the thyroid glands; "'The spleen is physiologically unimportant, pathologically very important," Dr. William Mayo; "Blue-dome cyst"; The case against gastro-enterostomy, by Balfour of Rochester, discussed by Horsley, of Richmond, Sippy of Chicago and Coffey of Portland, also (not on the programme) by Chas. Mayo, and W. D. Haggard; a paper on "Primary Carcinoma of the Gall-Bladder," by Stephen H. Watts of Charlottesville, read by title.

In Obstetrics one whole session was devoted almost entirely to uterine pathology in relation to surgery and X-ray treatment. Subjects discussed in ophthalmology included: The Ophthalmologist and the Psychoneuroses by Emory Hill; Telescopic Spectacles and Magnifiers; Retrobulbar Sarcoma Treated by X-ray, by Pfahler of Philadelphia; Sluder was astride his hobby, Nasal Disturbances Due to Meckel's Ganglion; Chevalier Jackson was heard on Bilateral Recurrent Laryngeal Paralysis. Mixter of Boston read a paper on Chronic Appendicitis in Children; Rosenow one on Serum in Poliomyelitis.

Under Pharmacology, Resuscitation; Calcium Therapy; Iodin in Exophthalmic Goitre; Anti-Syphilitic Action of Bismuth were discussed.

A symposium on cancer was concluded by Case of Battle Creek, who summarized "recent technical progress in radium and X-ray." Addition of sodium iodide to water supply in goitrous sections caused much interest. There were symposia on neuro-syphilis, hematuria, and ethylene anesthesia.

In the scientific exhibit there is a museum of pathology worthy of a month's careful study. The great medical schools presented day after day specimens, photographs, radiograms, demonstrations, which, if one possessed the time and power of attention to assimilate, would qualify for the medical degree, all in the space of four days. Prizes, well-deserved, were awarded to the exhibitors.

Commercial displays must be mentioned with discretion. It may be stated that these are modest, well-manned, entertaining and profitable; one feasts, digests, enjoys, remembering to take *cum grano salis*. Ethical advertisement is all that the American Medical Association permits in every medium under its control.

The specialists in Radiology are not honored with a special section and meeting place, but are classified as "miscellaneous." Their attendance, however, is noteworthy, and new material is offered them in the diagnosis of cardiac conditions, X-ray studies of the newborn, cancer and thyroid therapy, and new lights on old problems.

When not in our own special section we are sitting under the stereopticon of the Moving Picture pavilion, where the A, B, C and the X, Y, Z of medical science are set forth all day long, in popular and often elaborate form, under such heads as *Well-born*, *The Science of Life*, *Abrams and His Vagaries*, *and Radium Therapy*.

If you are looking for friends and acquaintances, you may or may not find them, but the first thing to do is to seek the departments which naturally interest them, just as they search for you in your native pastures. The Richmond contingent is small at this meeting, but that of Virginia quite considerable; Norfolk, Roanoke, Winchester, Burkeville, Buena Vista, Woodstock, Exeter, and other places are represented.

In the House of Delegates are Drs. Leigh of Norfolk, Buxton of Newport News, and Emory Hill, of Richmond. Our other delegate. Dr. J. A. Hodges, Richmond, was prevented by sickness from attending. Dr. J. S. Horsley attends as Chairman of Council of Scientific Assembly.

In Chicago at the same time the State Health Officers are meeting with the Surgeon-General: Dr. Ennion Williams of Virginia is present from Virginia.

Dr. W. D. Haggard, Nashville, Tenn., has been elected president. Nominations for this office included Dr. Seale Harris, Birmingham; Dr. Rudolph Matas, New Orleans; and Dr. Wm. S. Thayer, Baltimore. Dr. Morris Fishbein, Chicago, was elected editor of the *Journal of the A. M. A.*, succeeding Dr. Geo. H. Simmons, who retired, and Dr. Olin West was named secretary-manager. The two last named hold offices until meeting of the Board of Trustees in the winter.

More detailed discussions of an endless profusion of important, epoch-making subjects will be found in the *Journal of the A. M. A.*, in the prospectus published in the May 10th number, in the handbook distributed at Chicago, and in the articles which will appear in *The Journal* during the ensuing year. We might add that *The Journal* is one of the blessings of our professional life and a *sine qua non*, like the oath of Hippocrates.

Chas. M. Hazen, M. D.

Book Announcements

Modern Methods of Treatment. By LOGAN CLENDENING, M. D., Assistant Professor of Medicine, Lecturer on Therapeutics, Medical Department of the University of Kansas; Attending Physician Kansas City General Hospital, Kansas City, Kansas. With Chapters on Special Subjects by Various Authors. Illustrated. St. Louis. The C. V. Mosby Company. 1924. 8vo of 692 pages with 77 illustrations. Cloth. Price, $9.00.

The table of contents gives one a very fair idea of what may be looked for in this book; consequently, we give below the divisions and sub-titles, as follows: PART I—GENERAL THERAPEUTICS—The Methods Used in Treatment. This includes chapters on Rest; Drugs; Biologic Therapy and Prophylaxis; Extracts of the Ductless Glands; Dietetics; Heat and Cold—Hydrotherapy; Medical Gymnastics and Massage; Exercise; Electrotherapeutics; Radiotherapy; Climate, Aerotherapy, Heliotherapy, Mineral Springs, Health Resorts; Psychotherapy; Miscellaneous Procedures. PART II deals with SPECIAL THERAPEUTICS—The Application of Therapeutics to Particular Diseases. This has chapters on The Treatment of the Infectious Diseases; Diseases Due to Allergy; Diseases of Metabolism; Diseases of the Blood; of the Cardiovascular System; of the Respiratory System; of the Kidneys; of the Digestive System; and of the Ductless Glands. The technic of various methods used in diagnosis and treatment are given in detail, and there are many useful tables for reference, including seven pages on various food values.

Life Insurance Examination. Edited by FRANK W. FOXWORTHY, Ph. B., M. D., Indianapolis, Ind., formerly Chairman Medical Section, American Life Convention, President of the American Association of Medical Examiners, Chief Surgeon Indiana National Guard, Associate Editor "Medical Insurance," and for many years a Medical Director, a Medical Referee, and a Medical Examiner. St. Louis: The C. V. Mosby Company. 1924. Octavo of 738 pages, with 156 illustrations. Cloth. Price, $9.00.

This is really a very excellent volume that deals with every phase of life insurance examinations—up-to-the-minute in its completeness. The various chapters are written mostly by Medical Directors of numerous insurance companies, although there are several outside contributors who were selected to write on special but correlated subjects. This, we believe, gives the book a very definite value, because it presents the viewpoint and expression from those who are actually handling this sort of work. We find, among other things, many valuable suggestions to the medical examiner for solving perplexing questions that naturally arise in his contact with the applicant, agent, and Home Office, so that, especially for the examiner who expects to get the best results, we feel he will not regret the purchase of this book. However, aside from its value to those in the life insurance field, there are so many helpful suggestions relating to the methods used in examination together with an estimation of the findings, that physicians generally will find the work of practical worth.

Diseases of the Eye. A Handbook of Ophthalmic Practice for Students and Practitioners. By GEORGE E. de SCHWEINITZ, M. D., LL. D. Professor of Ophthalmology in the University of Pennsylvania. Tenth Edition, reset. Philadelphia and London. W. B. Saunders Company. 1924. Octavo of 65 pages with 434 illustrations and 7 colored plates. Cloth, $10 net.

This "greatest American book on Ophthalmology" has undergone a very thorough revision and has been made to conform to the latent ideas in this important field.

Operative Surgery. Covering the Operative Technic Involved in the Operations of General and Special Surgery. By WARREN STONE BICKHAM, M. D., F. A. C. S., former Surgeon in charge of General Surgery, Manhattan State Hospital, New York; former Visiting Surgeon to Charity and Touro Hospitals, New Orleans. In six octavo volumes totaling approximately 5,400 pages, with 6,378 illustrations, mostly original, and seperate Index volume. Volume IV. contains 842 pages with 772 illustrations. Philadelphia and London. W. B. Saunders Company. 1924. Cloth, $10 per volume. Sold by subscription only. Index Volume free.

The Diseases of the Breast. By WILLMOTT H. EVANS, M. D., F. R. C. S., Consulting Surgeon to the Royal Free Hospital, London. The University of London Press, Ltd., 17 Warwick Square, E. C. 4. 1923. Cloth. 495 pages, with 106 illustrations, of which 15 are colored.

This work contains an account of the present state of our knowledge of the malformations, diseases and surgery of the breast. Although the book deals with the whole subject, malignant disease, owing to its prevalence and importance, receives special attention.

Two Lectures on Gastric and Duodenal Ulcer. A Record of Ten Years' Experience. By SIR BERKELEY MOYNIHAN. Leeds, Bristol: John Wright & Sons, Ltd. London: Simpkin, Marshall, Hamilton, Kent & Co., Ltd. New York: William Wood & Co. 1923. Octavo, 48 pages. Paper. Price, 2/9 post free.

Collected Papers of the Mayo Clinic and the Mayo Foundation, Rochester, Minn. Edited by MRS. M. H. Mellish. Volume XV. 1923. Published June, 1924. Philadelphia and London. W. B. Saunders Company. 1924. Octavo of 1377 pages, 410 illustrations. Cloth, $13 net.

This new Mayo Clinic volume marks a radical departure from the policy previously pursued. It is a complete reference record of all papers issued from the Mayo Clinic and the Mayo Foundation for the past year. The more important papers are published complete with illustrations, while matters of less general interest are abridged, abstracted, or published by title. This will obviate the publication of a volume containing the Foundation theses.

The two volumes last year had more than 2,100 pages. While this volume of 1,377 pages is rather large, it is surely rich in up-to-date information. Articles on the alimentary tract require 340 pages; urology 214 pages; ductless glands 108, etc. Most surgeons regard the Mayo Clinics an absolute essential in their libraries. We see no reason why it should not be equally valuable to the internist. It is becoming more and more the "Literary Digest" of medicine.

National Health Series. Edited by the NATIONAL HEALTH COUNCIL. Funk and Wagnalls Company. New York and London. 1924. 16 mo., full flexible fabrikoid. Average number of words per volume 18,000. Price per volume 30 cents. Complete set of 20 volumes, $6.00.

With the four volumes announced herewith, a total of fourteen of these books have appeared. They are all in an easy readable style suitable for the layman. The four last received are entitled: *Love and Marriage*, which deals with Normal Sex Relations; *The Expectant Mother*, which deals with the Care of her Health; *Tuberculosis*, which has to do with its Nature, Treatment and Prevention; and *Venereal Diseases*, which treats of its Medical Nursing and Community Aspects.

Diseases of the Chest and the Principles of Physical Diagnosis. By GEORGE W. NORRIS, M. D., Professor of Clinical Medicine, University of Pennsylvania, and HENRY R. M. LANDIS, M. D., Director of the Clinical and Sociological Departments of the Henry Phipps Institute of the University of Pennsylvania, with a chapter on the **Electrocardiograph in Heart Disease**, by EDWARD B. KRUMBHAAR, Ph. D., M. D., Director of Laboratories of the Philadelphia General Hospital. Third Edition, Revised. Philadelphia and London. W. B. Saunders Company. 1924. Octavo of 907 pages with 433 illustrations. Cloth, $9.50 net.

The new third edition of this very popular book has been carefully revised and much enlarged. A fortunate thing about this book is that it has been the means of bringing the attention of the profession back to the fundamentals of physical methods where the tendency has been to rely too much on the laboratory. He who aspires to achieve success in the detection of disease must acquire the technic of physical exploration; he must have a knowledge of the pathologic conditions which determine these physical changes, and he must give due heed to the factors elicited from the history of the case. The past generation has witnessed many extremes in "machine diagnosis." We have depended too much on the laboratory. Norris and Landis have done much to bring us back to the fundamentals of physical methods. This book is worthy of a place in any doctor's library.

Transactions of the College of Physicians of Philadelphia. Third Series. Volume the Forty-fifth. Philadelphia. Printed for the College. 1923.

This volume contains the papers read before the College from January, 1923 to December, 1923, inclusive, and is published in part by the income from the Francis Houston Wyeth Fund.

Mental Hygiene Leaflets Available to Physicians and Parents

The National Committee for Mental Hygiene, 370 Seventh Avenue, New York City, has just issued a series of leaflets on the mental hygiene of childhood. The set, called the Thom series, covers the following subjects:

1. Does your child fuss about his food?
2. Being a parent is the biggest job on earth.
3. Do you make the most of your child's intelligence?
4. Is your child jealous?
5. Does your child have temper tantrums? Did you ever stop to think why?
6. Obedience. Do you wish your child would mind every time you speak? Have you ever stopped to think why he does not?
7. Enuresis (bed-wetting).
8. Convulsions.
9. Some conditions in children that would suggest the use of a habit clinic.

One complete set of nine leaflets costs ten cents: large quantities are sold at special prices.

Massachusetts Program for Tuberculous Children.

A program has been presented to the Governor of Massachusetts by the Massachusetts Department of Health which would involve a ten-year campaign against tuberculosis at a cost of nearly half a million dollars. Under this plan the 200,000 children enrolled in the lower grades of the public schools would be examined in order to prevent the disease or to detect it in its earlier stages.

Virginia Medical Monthly

FOUNDED BY LANDON B. EDWARDS, M. D., APRIL, 1874.
OWNED BY THE MEDICAL SOCIETY OF VIRGINIA.
PUBLISHED BY THE PUBLISHING COMMITTEE.

A. G. BROWN, Jr., M. D., Chairman, Richmond, Va.

B. R. TUCKER, M. D., Richmond, Va.
P. W. HOWLE, M. D., Richmond, Va.
E. L. KENDIG, M. D., Victoria, Va.
A. L. GRAY, M. D., Richmond, Va.

ALEX. G. BROWN, Jr., M. D., Editor.

AGNES V. EDWARDS,
Business Manager and Secretary-Treasurer.

All correspondence regarding editorial matters, articles, advertisements, subscription rates, etc., should be addressed to the Journal.

All advertisements are received subject to the approval of the Council on Pharmacy and Chemistry of the American Medical Association.

Subscription Price: $2.00 per annum in advance.
Single Copies 20c.

Vol. 51. JULY, 1924 No. 4

Editorial

Comment on Syphilis.

Tomes have been written upon the subject of syphilis. Within a quarter of a century the cause (spirochaeta pallida), the diagnostic tests (Wassermann Reaction) and the more complete treatment (arsenic and mercury medication) of this malignant disease have been evolved. The history of syphilis, making its appearance in man in epidemic form in the fifteenth century and centering now about these three epochal accomplishments, of untold value to the human race, has produced an enormous volume of publication. From this prodigious literature, elaborating and recording criteria of the disease, medical practitioners may fail to cull essentials. Physicians may fall into the mental habit of looking for newer findings in research, while the fundamental and accepted factors in the cause, diagnosis, treatment and prevention are overlooked in daily practice.

This editorial comment is made with the purpose of bringing to the reader elementary facts in this widespread disease; the pathology in spirochaeta pallida infection of the human body, its diagnosis and treatment.

Syphilis is an infectious disease and it is due to the implantation and proliferation of spirochaeta pallida. (Schaudinn). This organism is a very delicate motile one, possessing flagella, like corkscrew threads. This organism is present in syphilis in the acute and chronic stages of the disease. It is found in all stages of the disease and, also, in all luetic pathology.

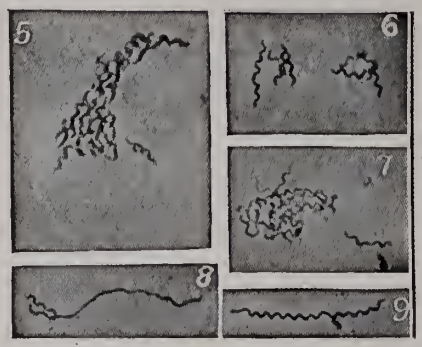


Fig. 1—(5, 6 and 7) Treponema pallidum from a Ten-Day-Old Pure Culture in a Horse-Serum-Agar-Tissue Medium. Giemsa Stain, x1,280. (8 and 9) Long Forms from a Pure Culture. Giemsa Stain, x1,280. (After H. Noguchi, "Studies from the Rockefeller Inst. for Med. Res.," Reprinted from J. Exp. Med.) (From Barker's The Clinical Diagnosis of Internal Diseases, Vol. 1, page 369).

The First Stage.—The disease is transmitted usually through sexual intercourse, and appears locally upon the mucous membrane of sexual organ in three to six weeks after contact, in the form of a local, painless, pale, firm nodule, called Hunterian chancre. This tends to break down into an ulcer. It is in this form recognized as a syphilitic chancre, possessing a hard, woodlike margin. This primary or local syphilitic lesion disappears under treatment in three to five weeks, but spirochaeta pallida pass into the general system, producing secondary lesions. The inguinal glands, retrocervical lymph glands, and later, epitrochlear glands, bilaterally, disclose, dur-

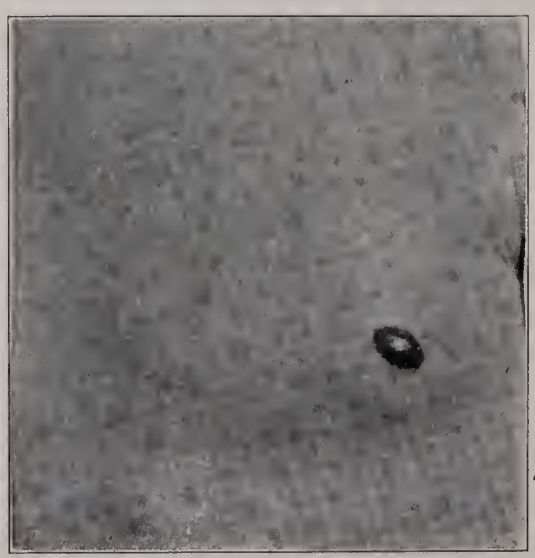


Fig. 2—Syphilis maculosa (Roseola). (From Jacobi-Pringle's Dermochromes, Vol. III, plate CVIII).

ing seven to nine weeks, general involvement and enlargement denoting lymphadenoid hyperplasia.

The Second Stage.—In nine to twelve weeks secondary signs of spirochaeta pallida pathology appear in the skin system. In this stage exanthem or skin lesions appear: macular, rose-colored exanthem. The syphilitic roseola appears first on chest, abdomen and back, associated with slight feverishness, headache, pains in back and legs. The face and extremities escape this eruption usually, but the uvula, tonsils and soft palate may show it; later the mucous membrane of tongue, lips, tonsils and cheeks may disclose the characteristic mucous patch. The patient feels quite ill.

The clinical evolution of the skin lesions proceeds, with more or less constancy, from macular syphilid to papular syphilid. Papular syphilids are small, firm, brownish-red or copper colored. In severe grade of syphilis, the papules are smaller, and are called small papular syphilid or miliary syphilid; in more malignant types of syphilis, the papules are nodular and undergo ulceration. The culminating skin lesions are the pustular syphilids. The pustules are large and surrounded by a red zone. Scabs form over the pustule as the pathology advances. Later the old central crusts become elevated and curl. If the scalp or beard is the site of pustulation the term impetigo syphilid is used to describe the nature of the lesion.

During this stage other clinical symptoms may arise in form of hoarseness, meaning laryngeal mucous patches or ulceration; falling hair from scalp, eyebrows, eyelashes, axillae and beard may occur. Neuritis, arthritis, optic neuritis, periostitis, unilateral or bilateral iritis may occur. There may be relapses in inadequately treated cases. It must be noted that the disease is extremely infectious during this stage: the spirochaeta pallida are undoubtedly most virile and widely distributed during this stage.

The Third Stage.—The tertiary stage of syphilis is the gumma stage: "aggregations of small mononuclear cells which tend to break down from coagulating necrosis." The gumma vary from the size of a pin's head to that of a child's head; they are found in skin system; in organs—as liver, lung, spleen, intestines, kidney and heart (visceral syphilis); they are also found in the brain (with signs of brain tumor, gumma of brain). Gummatous arteritis of brain may cause brain lesion: hemiplegia or aphasia. Gummatous arteritis of vessels of spinal cord may cause paraplegia. Gummata of the bones are common in the skull, particularly in bones of the nose (saddle nose); perforation of nasal septum and palate also occur. Syphilitic liver, intestines, spleen, heart and aorta give characteristic symptomatology.

The Fourth Stage.—Paraluetic stage of this chronic general infection appears from ten to fifteen years, or more, after the primary lesion. This is the stage when the spirochaeta pallida, after long years of human habitation, invade the cerebrospinal system and slowly evolve a pathology which assumes two general forms: (1) cerebral cortex symptoms or general paresis (dementia paralytica); (2) spinal meninges and roots of sensory nerves "lead to degeneration of the posterior funiculi of the spinal cord (tabes dorsalis or locomotor ataxia)."

Hereditary Syphilis

Congenital syphilis makes this disease unique in the category of disease. Often signs of syphilis in the second generation are overlooked. Children with (1) Pemphigus of the palms and soles; (2) coryza; (3) early and chronic signs (syphilids); (4) Parrot's pseudoparalysis of newborn; (5) gummatous osteochondritis of long bones—are probably infected with spirochaeta pallida.*

Diagnosis

Syphilis demands early diagnosis. Early diagnosis enables a more complete treatment. The accepted clinical signs of chancre are not adequate. The laboratory study by dark field and Wassermann reaction should be applied in every case. Stokes, of the Mayo Clinic, has recently emphasized this in a concise article which we quote in part:

(1) "Apply modern syphilologic teachings in diagnosis: put in background attempts at recognition of primary lesion by time-worn descriptive criteria of physical characteristics of the chancre.

(2) "Use the dark field; repeated dark field examinations in all genital lesions are needed.

(3) "Treatment should be deferred until dark field examinations have been conducted.

(4) "A Wassermann Reaction should be taken routinely on any lesion which in any way suggests the possibility of a syphilitic primary lesion. Should dark field examinations be nega-

*Barker's Clinical Diagnosis of Internal Medicine.

tive, Wassermann test should be repeated at frequent intervals, 'the last test being taken at least four months after the lesion is first seen.'

(5)"Physicians should use repeated Wassermann tests if results are conflicting or clinical signs suggest possible lues.

* * * * *

(7) "In *latent* or *late* syphilis, it should be remembered that no *single* test will yield over sixty to seventy per cent of positive reactions. The negative blood Wassermann test in particular can not be taken as proof of freedom from syphilis. Physicians should cultivate a habit of mind to suspect syphilis and to rely on no one test. A careful search by examinations and a good working knowledge of disease processes produced by the spirochaeta pallida, as seen in various systems of the body, in its so-called latent and late stages, are indispensable to one hundred per cent correct diagnoses. In these forms physicians should be alert to recognize luetic lesions. The favorite sites of this superficial pathology are mucous membranes, skin, genitalia, palms and soles, the bone system, the heart and blood vessels and the eyes. The spinal fluid and blood Wassermann are needed here.

* * * * *

Fig. 3—Gait in tabes. Observe over-extension of supporting knee, rigidity of advancing leg, elevated toe, heavily descending heel, watchfulness of steps, and assistance by cane. (From Church-Peterson's Nervous and Mental Diseases, page 398).

(10) "Diagnosis of syphilis, from primary lesion through the multiform pathology of intermediate stages to paresis, rests upon the frequent and free use of diagnostic laboratory tests and upon a recognition by physicians of outcroppings of syphilitic pathology in signs and symptoms far removed from those given in classical descriptions of the disease. The syphilitic patients may have skin diseases, bone diseases, hemorrhagic symptoms, eye diseases,

Fig. 4—Taken to show the expression of paralytic dementia in an unusually expressive face (loaned by Dr. Atwood). (From Church-Peterson's Nervous and Mental Diseases, page, 738).

ear diseases, circulatory diseases, lung, liver and spleen diseases, kidney diseases, gastro-intestinal diseases, nervous and endocrine diseases; all due to generation-old infection of spirochaeta palliada."

Treatment

Stokes' special article, in *Venereal Disease Information, U. S. P. H. Service*, March 20, 1924, Volume 5, Number 3, gives wholesome rules to be wisely followed in treatment; they are well stated and are given to our readers verbatim:

1. In discussing treatment, primary emphasis should be placed upon the fundamental relapsing character of the syphilitic infection and the wide variation of individual cases. Physicians who are to treat syphilis should be advised to make less use of the term "cure" in their own thinking, and urge upon the patient the desirability of prolonged observation, extending not through the first one or two years but through the first decade or two of the disease if not through life. Those who treat syphilis should realize that no system of therapy or combination of drugs thus far devised

can unqualifiedly guarantee the patient against relapse.

2. Special emphasis should be placed upon the seriousness from the standpoint of the public health of relapses into infectiousness. Such infectious relapses may occur very promptly after a short course of arsphenamin, they may occur in the midst of mercurial treatment, and they may occur even after prolonged use of both drugs in combination.

3. In all aspects of the treatment of syphilis, emphasis should be placed upon principles rather than upon hidebound and schematized therapeutics. Especially important for the instructor to bear in mind are the following:

1. Individualize the patient. Remember that you are treating a human being not an abstraction.

2. Treat syphilis as a whole and not from the standpoint of some isolated aspect.

3. Insist upon the combined use of mercury and arsphenamin in early syphilis, the former for spirillicidal effects, the latter for the building and maintenance of the patient's resistance. Emphasize that mercury does not control infectious lesions. Do not encourage rest intervals in the first year of an early case.

4. Taboo mercury by mouth in early cases and the use of a small number of injections of arsphenamin. If the patient can not be given at least two courses of six injections each by the physician who has charge of him, that physician should send him to some place or agency where he can receive at least this number of injections. Use mercury by inunction and intramuscularly.

5. Emphasize the fact that inadequate early treatment for syphilis, especially the inefficient administration of arsphenamin, is responsible for grave relapses and probably for a steady increase of the incidence of neurosyphilis. Insist therefore that early treatment shall be both intensive and prolonged. Most early syphilis is undertreated.

6. Discourage the merely symptomatic outlook on the results of treatment. In particular the disappearance of lesions and the reversal of the blood Wassermann reaction from positive to negative in the first few years of the infection have relatively little significance. Insist that no patient shall be placed upon a prolonged rest period or allowed to lapse from observation and treatment in early syphilis until the spinal fluid has been examined and found normal.

7. Emphasize the need for treatment in all patients who show evidence of syphilis, even though that evidence be nothing but a positive blood Wassermann reaction; this provided the patient has never been adequately treated before. Before beginning such treatment make a full investigation of the status of the case, with special reference to the condition of the special sense organs, the heart, and the nervous system (spinal puncture). Do not be satisfied merely with a positive Wassermann reaction. Know what kind of syphilis the patient has.

8. In late cases of syphilis warn physicians of the danger of injudicious and overintensive treatment, and especially of the premature use of arsphenamin in patients with serious lesions in the heart, liver, and nervous system. Advise mercurial preparation.

9. Take every step possible both in early and late cases to maintain the general health and resistance of the patient and the integrity of the excretory mechanism.

10. Syphilis of the hereditary and congenital type should be treated with the same vigor and by essentially the same methods as late syphilis in adults.

11. Syphilitics should not marry within three years after infection, even when under treatment.

12. Many syphilitics have syphilitic families or contacts. Search out members of these families or the patient's other contacts and endeavor to bring them under treatment.

13. Syphilis must be treated as a whole. It is inexcusable to treat patients merely to control temporarily infectious manifestations. No agency should assume charge of a patient which is not prepared to meet every aspect of his case from start to finish and throughout the patient's life. Follow-up and observation are as essential as treatment.

14. Technical skill as well as trained judgment are essential to the treatment of syphilis. Emphasize how to do a thing as much as what to do.

News Notes

University of Virginia, Department of Medicine.

Finals at the University, this year, June 8-10, held the usual interest for the graduates, alumni and visitors. Bishop Collins Denny, of Richmond, preached the baccalaureate ser-

mon on the 8th. Right Reverend Lucian Kinsolving, Bishop of Brazil, delivered the chief address at the alumni luncheon on Monday the 9th, and Dr. William M. Thorton, dean of the department of engineering of the University, delivered the Phi Beta Kappa address that evening. Four members of the medical school received this honor. Class day exercises were held on Tuesday morning and degrees were conferred that afternoon on which occasion Christie Benet, former United States Senator from South Carolina, delivered the address. The usual entertainments and dances added to the festivities of commencement.

There were thirty graduates in medicine. The full list, with hospital appointments, follows:

University of Virginia Hospital, University.—Drs. Edward H. Fite, Muskogee, Okla.; Richard S. Gill, Petersburg; Raymond D. Kimbrough, University; Reese Morgan, Portsmouth; Daniel M. Prince, Laurinburg, N. C.; Hall H. Ratcliffe, Natchez, Miss.; Souren Tashjian, Seattle, Wash.; Marion H. Watson, Chatham; Graven F. Winslow, Elizabeth City, N. C.

St. Luke's Hospital, New York City.—Drs. Eugene O. Barr, Washington, D. C.; Winston U. Rutledge, Anchorage, Ky.

Cincinnati General Hospital, Cincinnati, O.—Dr. Lila M. Bonner, Greenwood, S. C.

Petersburg General Hospital, Petersburg, Va.—Dr. Wilbur M. Bowman, Petersburg, Va.

Johnston-Willis Hospital, Richmond. — Dr. Harry L. Denoon, Jr., Richmond.

Boston City Hospital, Boston, Mass.—Drs. Frederic G. Dorwart, Newport, Pa.; Luther W. Kelly, University, Va.; Preston Nowlin, Portsmouth, Va.

Unity Hospital, Brooklyn, N. Y.—Dr. Irving Drabkin, New York, N. Y.

Buffalo City Hospital, Buffalo, N. Y.—Drs. Don C. Eskew, Knoxville, Tenn.; William D. Wylie, Richburg, S. C.

Stuart Circle Hospital, Richmond. — Dr. Holcombe H. Hurt, Blackstone, Va.

Ohio Valley General Hospital, Wheeling, W. Va.—Dr. Floyd L. Knight, Carthage, N. C.

Providence Hospital, Washington, D. C.—Dr. James A. O'Keeffe, Richmond.

East Orange Hospital, East Orange, N. J.—Dr. Nelson W. Sisson, Williamsville, Va.

U. S. Naval Hospital.—Drs. Charles H. Allman, Glade Hill, Va.; William E. Pinner, Suffolk, Va.; William H. Turnley, Ft. Meade, Fla.

Instructor in Physiology, University of Virginia.—Dr. Howard W. Angell, University, Va.

Dr. Morris Cohen, Lynchburg, Va.

Dr. Joseph H. Luscinian, Blacksburg, Va.

Staunton, the Convention City.

Under the *Miscellaneous Department*, in this issue, appears another interesting article about Staunton, our next convention city, by Dr. Charles M. Blackford. If you have been doubtful about attending, these articles should "turn the trick" in making you want to be "among those present." Dr. A. F. Robertson, Jr., chairman, and all the other members of the Local Committee of Arrangements, are doing what they can to add to the comfort and pleasure of those who attend. Headquarters will be at Hotel Stonewall Jackson, but as Hotel Virginia adjoins this and is connected with it on all three floors, and the two hotels have lobby and elevator service in common, they are, to all intents and purposes, one hotel. We give rates herewith, and would impress the necessity of making reservations promptly. This may be done by writing directly to the hotels, or to Dr. George H. Thomas, chairman of the Hotel Committee. If at the last minute you find you will be unable to attend, there will be others who can use your reservations. The Y. M. C. A. and private boarding houses can take care of a limited number of doctors also.

SCHEDULE OF RATES

Hotel Stonewall Jackson—100 rooms—European Plan.
Rooms with Lavatory and Toilet, for one, $2.50; for two, $4.00.
Rooms with Shower Bath, for one, $3.00 and $3.50; for two, $5.00.
Rooms with Tub Bath, for one, $3.50 and $4.00; for two, $6.00 and $7.50.
Rooms with Shower and Tub Bath, for one, $4.50 and $5.00; for two, $6.50 and $7.00.
Rooms with Twin Beds and Bath, for two, $7.00 and $8.00.
Parlor Suites, $10.00 and up.

Hotel Virginia—128 rooms—European Plan.
Rooms with Lavatory, for one $1.50 and $2.00; for two, $3.00.
Rooms with Tub Bath, for one, $2.50 and $3.00; for two, $4.50 and $5.00.
Sample Rooms with Tub Bath, for one $3.50 and $4.00; for two, $6.00 and $7.00.

Beverley Hotel—68 rooms—American Plan.
Rooms Without Bath, $3.00.
Rooms With Bath, $3.50.

New Appointments in the University of Virginia Medical School.

Two new appointments have been made to the teaching staff of the Medical School of the University of Virginia.

Dr. Leroy A. Calkins, now Assistant Professor of Obstetrics and Gynecology in the University of Minnesota, has been elected Professor of Obstetrics and Gynecology. Dr. Calkins is a graduate of Cornell College, Iowa, and spent two years in the study of Physics before entering upon the study of medicine in the University of Minnesota in 1913, graduating from the same medical school in 1918. After graduation he spent three years in postgraduate study under Dr. Litzenberg, and received the Degree of Doctor of Philosophy in Obstetrics and Gynecology in 1921. Since then, he has been instructor and assistant professor in the same subjects in the University of Minnesota Medical School. Dr. Calkins has published important investigations in the relative rates of growth in different parts of the fetal skeleton.

The subject of Gynecology has been divided between the Departments of Surgery and Obstetrics, the Department of Obstetrics taking charge of recent and old injuries of childbirth, such as lacerations, fistulae, prolapse of bladder and uterus and other displacements of the uterus in women who have borne children. Other gynecological cases will, as heretofore, be handled by the Department of Surgery.

Dr. Alfred Chanutin has been elected Associate Professor of Biological Chemistry. Dr. Chanutin took his academic work at Yale and subsequently specialized there in the Department of Biological Chemistry, receiving the degree of Doctor of Philosophy under Dr. Lafayette B. Mendel in 1923. Prior to this he has worked under Dr. R. M. Pierce at the University of Pennsylvania, and Dr. Graham Lusk at Cornell Medical School, New York. During the past year, he has been in the Department of Physiology at the University of Illinois. He has conducted important investigations into the fate of water introduced into the blood, the main results of which have been recently published in the *American Journal of Physiology*.

The Association of Surgeons of the Southern Railway System,

At its last annual meeting in Jacksonville, Fla., elected Dr. H. R. Black, of Spartanburg, S. C., president, and re-elected Miss Edith Foltz, secretary-treasurer. The three prizes offered annually by the *International Journal of Medicine and Surgery* for the best papers read were awarded, first to Dr. Stuart McGuire, Richmond, Va., second to Dr. C. L. Guice, Gadsden, Ala., and third to Dr. H. A. Briggs, Asheville, N. C.

Married.

Dr. Allan Moore Kimbrough and Miss Carrie Nelson Berkeley, both of Richmond, June 17th.

Dr. William Ambrose McGee and Miss Lois Marie Johnson, both of Richmond, June 24th. Dr. McGee was a member of this year's graduating class at Medical College of Virginia and received appointment as one of the internes at St. Elizabeth's Hospital, this city.

Dr. Richard Hardaway Meade, formerly of Richmond, who graduated from the Medical School of Harvard University in 1921, and Miss Mary Frazier, daughter of Dr. Charles Harrison Frazier, of Philadelphia, June 14th. Dr. Meade and his wife will sail about the first of August, for China, where he will accept an appointment at St. James Hospital, Anking, China.

Dr. Paul Frederick Whitaker, Kinston, N. C., of the class of '22, Medical College of Virginia, and Miss Pocahontas Farrar Lipscombe, of Richmond, June 11th.

Dr. William P. Gilmer, a native of Pulaski, Va., who practiced for a time at Clifton Forge, Va., and Miss Catherine Newman, of Baldwin, Miss., June 2nd, at Seone, Korea, where both are engaged in mission work. Dr. Gilmer went out to Korea as a medical missionary about a year ago.

Dr. Edward Halsell Fite, Muskogee, Okla., and Miss Elizabeth Coleman Williams, daughter of Dr. and Mrs. J. Fulton Williams, of Charlottesville, Va., June 13th. Dr. Fite was a member of this year's class of the Medical School of the University of Virginia, and has accepted an internship at University Hospital for the ensuing year.

Dr. John Alexander Coleman, Miami, Fla., and Miss Mary Matthews Dabney, Richmond, June 24th. Dr. Coleman graduated this year from the Medical Department of Tulane University of Louisiana, and has been appointed one of the internes to Memorial Hospital, Richmond, for the coming year.

Dr. Holloway Succeeds Dr. de Schweinitz.

Dr. Thomas B. Holloway has been elected professor of ophthalmology at the University of Pennsylvania Medical School to succeed Dr. George E. de Schweinitz, resigned.

Dr. David B. Stuart,

Cumberland, Va, who gradnated this year from Medical College of Virginia, is locating in Dublin, Va., for the practice of medicine.

Doctors Have Losses by Storms.

Among those to suffer heavy losses in their orchards and crops as a result of the recent hail and wind storms are Dr. A. C. Swinley, of Winchester, Va., and Dr. A. P. Osborne, of Berryville, Va.

Miss Van Vort to go to Knoxville General Hospital.

Miss Rosa Van Vort, having concluded her six months' organization work at St. Elizabeth's Hospital, Richmond, in which hospital she has inaugurated the training school for nurses, leaves the middle of July for Knoxville, Tenn., to take up the reorganization work of the Knoxville General Hospital. She will be succeeded at St. Elizabeth's Hospital by Miss Grace Riddell who has been associated with Miss Van Vort.

University of North Carolina has Extension Medical Courses.

More than 225 North Carolina physicians have been taking advantage of the post-graduate medical courses which have been held in various cities of the "Old North State" for the past few weeks. The instructors are brought to the doctors and it is a wonderful opportunity for the busy doctor.

Dr. David L. Edsall,

Dean of the Medical School of Harvard University, and family are spending some time at their country home near Millwood, in Clarke County, Virginia.

Dr. and Mrs. J. C. Coulter

And daughter have returned to their home in Charlottesville, Va., after a motor trip to Pennsylvania, where they visited the Doctor's parents near Pittsburgh. Dr. Coulter and his brother from Missouri were at home together for the first time in twenty-two years. On the return trip, Dr. Coulter's party visited Chambersburg and Gettysburg, Pa. He reports that the roads were in good shape.

Doctors on Community League.

Drs. H. T. Hopewell, B. R. White and G. G. Crawford, of Strasburg, Va., have been appointed members of the health and sanitation committee of the Community League of that place.

Dr. W. W. Chaffin,

President of the Medical Society of Virginia, and family have just returned to their home in Pulaski, Va., after a pleasure trip to Canadian and other Northern cities.

Dr. Roy L. Noblin,

Nelson, Va., of this year's class, Medical College of Virginia, is locating at Stovall, N. C., for the practice of his profession.

The American Gynecological Society,

At its recent meeting at Hot Springs, Va., elected Dr. Howard C. Taylor, New York, president, and re-elected Dr. Arnther C. Curtis, Chicago, secretary.

Tonsil and Adenoid Clinic at Fredericksburg.

About the middle of June a tonsil-adenoid clinic was held in Fredericksburg, Va., at which time twenty-six boys and girls from Stafford County and the city of Fredericksburg were operated upon, under the auspices of the Fredericksburg Nursing Association and the Stafford County Public Health Association. Dr. H. M. DeJarnette, assisted by other physicians and several nurses, looked after the patients.

Professor of Pediatrics, Medical College of Virginia.

Dr. St. George T. Grinnan, for a number of years associate professor of pediatrics at the Medical College of Virginia, was, at the June meeting of the Board of Visitors of the College, appointed professor of pediatrics to fill the vacancy caused by the death of Dr. McGuire Newton a little over a year ago.

Dr. J. Fulmer Bright,

Recently elected mayor of Richmond, Va., has qualified before the Hustings Court, and will enter upon his duties on September 1st. We extend our good wishes to Dr. Bright in his new field of work.

Dr. William J. Norfleet,

Formerly of Suffolk, Va., who, since his graduation from University of Virginia Medi-

cal School in 1922, has been connected with University Hospital, has accepted an appointment at Shreveport Charity Hospital, Shreveport, La., and entered upon his duties July 1st.

Dr. Beverley R. Tucker,

Richmond, Va., was acclaimed poet laureate of the Edgar Allan Poe Shrine of this city, at a recent meeting of the board of directors.

Dr. and Mrs. I. Keith Briggs,

South Boston, Va., were recent visitors in Asheville, N. C.

Dr. H. R. Fairfax,

Formerly of Bristol, Va.-Tenn., after completing a post-graduate course at Tulane University, has located at Brookhaven, Miss., where he will continue the practice of medicine.

Dr. W. B. Moore,

Member of the Medical Society of Virginia, has moved from Browns Summit, N. C., to Smith, N. C., where he formerly practiced.

Dr. and Mrs. Joseph T. Buxton,

Newport News Va., early in June celebrated the twenty-fifth anniversary of their marriage with a brilliant reception at their home on Hampton Roads.

U. Va. Medical Students Take Examinations of the National Board.

Eighteen students of the University of Virginia Medical School took the examinations of the National Board of Medical Examiners, June 19-21, twelve taking Part I and six Part II. Part I covers the first two years of the medical course and Part II the last two years.

Medical licensure is a state matter, each state having complete regulation of the practice of medicine within its borders; and those who desire to practice within a state must therefore obtain this license from the State Board of Licensure. Each state board gives examinations and also is empowered by law to license by reciprocity those who hold licenses to practice in other states. Frequently there are annoying conditions placed upon obtaining reciprocity, and physicians who have successfully practiced medicine for several years at times find it necessary to stand examinations when moving from one state to another.

The National Board of Medical Examiners was founded in 1915 by the late Dr. W. L. Rodman, of Philadelphia. His son, Dr. J. S. Rodman is now secretary of the Board, and Major-General Merritte W. Ireland, Surgeon-General of the Army, is president. It is only an examining and not a licensing body, gives a thorough examination to those intending to practice medicine, and certifies the results of these examinations, which consists of three parts: Part I being on the medical sciences of the first two years, Part II on the clinical branches of the last two years of the regular four-year medical course, and Part III being a practical clinical examination taken at the completion of one year of interne service in an approved hospital. Twenty-eight states accept the certificate of the National Board in lieu of their own examinations, thus relieving the applicant for license from taking further examinations. Twelve other state boards have intimated their willingness to do the same as soon as the wording of the existing medical practice acts can be changed.

A table in the June number of the Bulletin of the National Board gives the nineteen schools from which the largest number of students have applied for the National Board examination. The University of Virginia stands seventh on this list. Harvard comes first with 286 and is followed by Pennsylvania with 214, Johns Hopkins with 162, Rush Medical College, Chicago, with 125, Woman's Medical College of Pennsylvania 114, Cornell 79, University of Virginia 57, Columbia 56, Yale 50, Washington University, St. Louis 37.

The University of Virginia is also the only medical school south of Baltimore among these nineteen leaders, and during the calendar year, 1923, the last for which statistics are available, out of the fourteen medical schools having ten or more students examined, only Cornell and Virginia came through with no failure.

Roanoke Doctors Well Represented at A. M. A. Meeting.

Thirty Virginia doctors were registered in attendance at the Chicago meeting of the American Medical Association, nearly twenty-five per cent of these being from Roanoke: Drs. T. D. Armistead, Paul Davis, Elbyrne Gill, K. D. Graves, J. T. McKinney, D. E. Remsberg, and J. M. Ropp.

Before returning home, Drs. Davis and McKinney spent sometime at the Mayo Clinic, Rochester, Minn., and Dr. Ropp visited Dr.

Potter's Clinic in Buffalo, N. Y., and the Lying-In Hospital in New York City.

Dr. S. A. Conduff

And family returned to their home, Laurel Fork, Va., July 1st, after a stay of four months in New York, where Dr. Conduff was taking a post-graduate course in eye, ear, nose and throat work at the New York Post-Graduate School and Hospital.

Dr. D. Hunter Marrow,

After spending the winter and spring at Daytona, Fla., has returned to his old home at Union Level, Va.

Dr. and Mrs. E. T. Gatewood

Have returned to their home in Richmond, after a visit to Atlantic City, N. J.

Officers in Alumni Association.

Drs. W. R. Whitman, Roanoke, Va., and Nat. Copenhaver, Bristol, Va.-Tenn., were elected vice-presidents of the Roanoke College Alumni Association, at its annual meeting last month.

U. S. Base Hospital, No. 45,

Better known in this section as McGuire Unit, has just issued a splendid history of its activities, from the inception of the plan for its organization to the time the men were mustered out. It covers 352 pages and contains 200 photographs. It is unfortunate that the edition is so limited—300 copies—that it may not have the circulation to which it is entitled because of its human interest.

Home for Nurses at Catawba Sanatorium.

The new home for nurses at Catawba Sanatorium, Va., has recently been completed and is considered a model structure of its type. It can care for forty-two nurses.

Dr. S. L. Scott,

Fredericksburg, Va., was elected one of the vice-presidents of the Virginia Historic Highway Association, at its organization meeting in Lynchburg, in June.

Dr. Paul Redd,

Of Highland Park, Richmond, has been elected a member of the committee on health and sanitation of the Highland Park Citizens' Association, for the ensuing year.

Dr. and Mrs. William E. Anderson,

Farmville, Va., are spending some time at their country home in Dinwiddie County, Va.

Dr. and Mrs. N. Thomas Ennett,

Richmond, have gone on a motor trip to Borden Lodge, near Morehead City, N. C., where they will spend the month of July.

Dr. R. V. Patterson,

Who has just completed his service as interne at Memorial Hospital, Richmond, has gone to Atlanta, Ga., where he will be connected with the house staff of the Georgia Baptist Hospital. He plans later to go as a medical missionary to the Orient.

Dr. and Mrs. Thomas W. Murrell,

Richmond, left about the middle of June for an automobile trip through the Adirondacks to Toronto, Canada.

Dr. and Mrs. E. R. Miller

And daughter of Harrisonburg, Va., attended the finals at the University of Richmond, on the occasion of the graduation of their son, Francis S. Miller.

Dr. and Mrs. J. Weldon Smith,

Farmville, Va., were visitors in Richmond during finals of Medical College of Virginia, having come for the graduation of their son, Dr. William Edward Smith.

Dr. and Mrs. Thomas Wheeldon

Have returned to their home in Richmond, after a visit to their former homes in Massachusetts.

Directors of Bank.

Drs. J. M. Williams and W. P. Hoy, Petersburg, Va., have been elected on the board of directors of the Union Bank and Trust Company of that city, formed by the consolidation of two large banking institutes of Petersburg.

Dr. India Hunt,

Of Blue Ridge Sanatorium, Charlottesville, Va., has been visiting relatives in Atlanta, Ga.

Dr. J. Randolph Chitwood,

Sylvatus, Va., who recently graduated from the Medical College of Virginia, visited his brother, Dr. E. M. Chitwood, of Wytheville, Va., before taking up his duties as an interne at Stuart Circle Hospital, Richmond.

Mr. Bird Associate in Bacteriology, M. C. V.

Mr. Lloyd Campbell Bird, Richmond, for more than five years assistant director of the city and state health laboratories, has resigned

that position, effective August 1, to become associate in bacteriology at the Medical College of Virginia, a new position created at the College.

Mr. Bird, who is a graduate in pharmacy from the Medical College of Virginia in the class of 1917, intends to devote all of his time to work in the bacteriological department of the College and to the expansion of the activities of the Alumni Association, of which he is secretary.

Dr. J. Walker Walters

And daughter, of Lynchburg, Va., have been visiting relatives in Orange, Va.

Child Clinic in Martinsville, Va.

Dr. Samuel Newman, pediatrician of Danville, Va., by invitation conducted a child clinic demonstration in Martinsville, Va., on June 11th. The physicians and public health workers of Martinsville co-operated with Dr. Newman in this work and a number of babies and children were examined according to most modern methods and records were placed in the hands of the attending physicians.

Dr. Millard B. Savage

Announces that he is located at 400 Fairfax Avenue, Norfolk, Virginia, in association with Dr. Burnley Lankford, both of them limiting their work to obstetrics. Dr. Savage graduated from University of Virginia in the class of 1921, after which he had interne service for eighteen months in a general hospital at Minneapolis and then six months at a private hospital in West Virginia. During the past year, he has been doing post-graduate work in obstetrics at Indianapolis, at Memorial Hospital, Syracuse, N. Y., and the Lying-in Hospital of New York City.

Dr. Archer A. Wilson,

Who has been practicing in Oxford, N. C., since his graduation from Medical College of Virginia, last year, has located at Maybeury, W. Va.

The Woman's Auxiliary, Dinwiddie County Medical Society,

Of which Mrs. Fletcher J. Wright and Mrs. George H. Reese, both of Petersburg, Va., are president and secretary respectively, held its quarterly meeting in that city recently. It was voted that the Auxiliary give the graduating class of Petersburg General Hospital an entertainment annually in behalf of the Petersburg medical faculty. Mrs. Herbert C. Jones, Mrs. W. Preston Hoy and Mrs. George H. Reese were named a committee to arrange for this year's entertainment, which was held on the afternoon and evening of June 27th. Mrs. Wright Clarkson and Mrs. John Harwood were hostesses for the meeting. The next meeting is to be held in September.

Dr. W. Brownley Foster to be Director of Public Welfare of Richmond.

Dr. J. Fulmer Bright, who will enter upon his duties as mayor of Richmond on September 1st, has appointed Dr. W. Brownley Foster as director of Public Welfare and Chief Health Officer of Richmond, thus combining, in the new administration, the offices held by Dr. E. C. Levy and Dr. C. C. Hudson, who recently resigned to accept a position in Greensboro, N. C. Dr. Foster, for the past fourteen years health officer of Roanoke, Va., will enter upon his duties on October 1st. He is a native of Richmond, and graduated from Medical College of Virginia in 1901, later taking post-graduate work at Harvard University and Massachusetts General Hospital. He is well known as a capable municipal executive and public health worker.

Dr. R. J. Yates

Has been elected mayor of the town of Potomac, Arlington County, Va.

Dr. D. Wright Kelly, Jr.,

Who graduated from Medical College of Virginia this year, visited his parents in Culpeper, Va., before going on to Hazard, Ky., at which place he received appointment as interne in the hospital.

Dr. Chevalier Jackson to Have New Chair at Jefferson College.

Dr. Chevalier Jackson recently resigned as professor of laryngology at Jefferson Medical College, Philadelphia, to accept the professorship of the newly created chair of bronchoscopy and esophagoscopy at the same college.

Dr. Fielding O. Lewis, who has been associate professor of laryngology at Jefferson Medical College, will succeed Dr. Jackson.

Dr. J. A. Rucker,

Bedford, Va., has been in Philadelphia for some time, where he is visiting the nose and throat clinics at the various hospitals.

The American Laryngological, Rhinological and Otological Society,

At its annual meeting recently held in St. Louis, elected Dr. William H. Haskin, New York, president, and Dr. Robert L. Loughran, also of New York, secretary. Dr. Elbyrne Gill, Roanoke, Va., was elected a member of the Society at this meeting.

Influenced by Surroundings.

Your patient, waiting in your reception room, is influenced by his surroundings, and the good reading matter he gets in "*Hygeia*," prepares his mind to appreciate and understand your work. Why not subscribe to this journal of individual and community health, founded and published by the American Medical Association? "On the informed mind quacks make no impression."

Dr. I. Carrington Harrison,

Danville, Va., who has been under treatment in Richmond, is reported as much improved.

Dr. E. E. Feild,

Norfolk, Va., has been spending some time at Crockett Springs, Va.

Dr. A. H. Deekens

Has returned to his home in Richmond, after attending the marriage of his niece in Cumberland, Md.

Habit Clinics for Children.

Temper tantrums are among the bad habits cured through the work of habit clinics for young children, a new development in the child-hygiene field.

Dr. D. A. Thom, Director of the habit clinics of the Community Health Association of Boston, which were started in 1921, has written a report for the U. S. Children's Bureau on their work. The clinics attempt to correct the undesirable conduct or personality defects of children under their care and to promote the mental health of these children just as health clinics attempt to cure physical defects and promote bodily health. Only 19 out of 130 children treated by the clinics last year did not improve, Dr. Thom states in his report. Some of the habit problems treated, in addition to temper tantrums, were destructiveness, pugnacity and shyness, delinquency, and acute personality changes.

Wanted.

Location on railroad in Virginia, by 1918 graduate, Class A school, who has had post-graduate work and one year hospital work. Doing general practice now. Aged 33 years. Will consider partnership. Can give references. Address No. 349, care this journal. (Adv.)

For Sale.

$7,000 practice in good Virginia town of 1,100 to 1,200 people, on good railroad. Good roads and churches, and four-year high school. Must buy real estate, consisting of house, lot, etc., price $7,500. Terms as desired. Possession September 1st. Address "J," care this journal. (Adv.)

Guinea Pigs For Sale.

Prices reasonable. Apply Health Officer, Newport News, Va. (Adv.)

Obituary

Dr. Samuel S. Simpson,

Of Clarendon, Va., died the latter part of May in Washington, D. C. He was about sixty years of age and had graduated in 1885 from the College of Physicians and Surgeons of Baltimore. He lived for sometime at Manassas, Va., and was for a number of years a member of the Medical Society of Virginia.

Dr. John B. Coakley,

Formerly of Richmond, Va., died at his home in Buffalo, N. Y., June 4, aged eighty-six years. He was graduated from Medical College of Virginia in 1861 and served as a surgeon in the Confederate States' Army. Three children survive him.

FOR ADMINISTERING THE DOYLE Chlorinometer TRADE MARK CHLORINE GAS

You, too, can now Administer Chlorine Gas

for the treatment of common colds, influenza, bronchitis, whooping cough, laryngitis and other respiratory diseases. A portable self-contained machine makes this advanced practice available to all members of the medical profession.

The Following Record

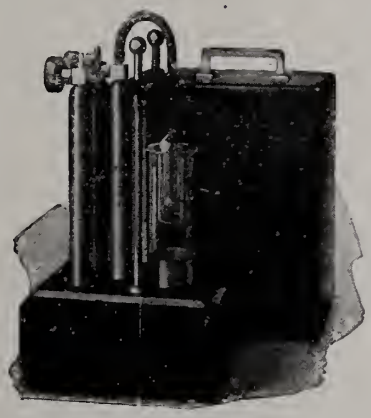
compiled by Lt. Col. E. B. Vedder, M.D. and Capt. H. P. Sawyer, M.D. (Medical Corps, U. S. A.) shows the remarkable results secured by employing CHLORINE GAS for the treatment of respiratory diseases. (Reproduced from the A. M. A. Journal of March 8, 1924).

Diagnosis	No. of Cases	Cured		Improved		No Change	
		No.	%	No.	%	No.	%
Coryza	388	288	74.2	91	23.5	9	2.3
Acute laryngitis and pharyngitis	127	99	78.0	24	19.0	4	3.1
Acute bronchitis	241	192	80.0	47	19.5	2	0.5
Chronic rhinitis	106	33	31.1	41	38.6	32	30.2
Chronic bronchitis	47	34	72.3	12	25.5	1	2.1
Chronic laryngitis	2	2	100.0	...	....	...	....
Whooping cough	9	8	88.8	1	11.1	...	....
Influenza	11	9	81.8	2	18.1	...	....
	931	665	71.4	218	23.4	48	5.1

THE DOYLE Chlorinometer TRADE MARK

makes possible the scientific administration of chlorine gas, in your office or the homes of your patients. No special rooms or preparations are needed. Just close the doors and windows of any room and set the "Chlorinometer" in operation.

The "Chlorinometer," simple and thoroughly reliable, has been created out of the experience of this Company's years of specialization in the designing and building of gas control apparatus. If used according to instructions, it cannot fail to give absolute satisfaction.



Each machine is accompanied by complete, detailed instructions which will enable any physician to secure uniformly successful results. The price of the "Chlorinometer," complete with polished walnut carrying case, latest model as illustrated, is $60.00 F.O.B., New York.

CHLORINE GAS DOYLE EQUIPMENT

Manufacturers and Sole Distributors

Scientific Apparatus Co.

(A CORPORATION)

17 WEST 60TH STREET, NEW YORK CITY

Pioneers in the Development and Manufacture of Gas Control Apparatus for the Medical Profession

"THE DOCTORS' SHOPPING PLACE"

¶THE BERRY STORE is favored by Physicians.

¶As they are usually men of unusual discrimination we are flattered.

Hanan Shoes

O. H. Berry Co.
ESTABLISHED 1879
RICHMOND, VA.

Dunlap Hats

Capital $1,000,000 Surplus Earned $1,000,000

ESTABLISHED 1892

To act as Executor, Guardian and Trustee
$25,000,000
of investments held in Trust

Confidential Interviews Invited.

Say, Doctor---

you can talk to us entirely confidentially about your affairs. Come by and let us answer your questions and advise you about your will.

This bank has friends all over Virginia, many of whom have already seen us about their wills.

Write or phone for a special engagement with Mr. G. Jeter Jones, Vice-President.

MERCHANTS NATIONAL BANK
11th & Main Streets. Richmond, Va.

"Safest For Trusts"

Virginia Medical Monthly

OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

Fifty-fifth Annual Meeting, Staunton, October 14-17, 1924.

Vol. 51, No. 5.
WHOLE No. 866.

RICHMOND, VA., AUGUST, 1924

$2.00 A YEAR
20 CENTS A COPY

CONTENTS.

ORIGINAL COMMUNICATIONS:

The Incidence of Human Anthrax in the United States with Special Reference to Shaving Brush Infections. Wyndham B. Blanton, M. D., Richmond, Va. 265

Some Therapeutic Problems of Old Age. Thomas R. Boggs, M. D., Baltimore, Md. 270

Arsphenamine Dermatitis. Report of a Case Treated with Sodium Thiosulphate. B. E. Harrel, M. D., Norfolk, Va. 274

On the Meaning of Dementia Praecox. Jas. K. Hall 276

Treatment of Appendicitis in Children. B. M. Baker, M. D., Norfolk, Va. 280

Backaches of Known and Unknown Origin. C. B. Greear, M. D., Honaker, Va. 282

The Treatment of Pyelitis. Robert C. Bryan, M. D., F. A. C. S., Richmond, Va. 284

Ultra-Violet Light. Frank Hancock, M. D., Norfolk, Va. 289

Etiology and Treatment of Squint: Results of some operative Cases. Chas. A. Young, M. D., Roanoke, Va. 292

Sinusitis from the Standpoint of the General Practitioner. G. B. Trible, M. D., F. A. C. S., Washington, D. C. 294

The Bladder, Its Importance in Gynecological Diagnosis and Treatment. Gilbert Franklin Douglas, M. D., Birmingham, Ala. 299

X-Rays and Their Therapeutic Application. Joseph Shohan, M. D., Greensboro, N. C. 302

Hypertrophic Pyloric Stenosis in a Child Four Years of Age. T. S. Ussery, M. D., Norton, Va. 309

A Case of Vincents Angina Treated with Antimony Potassium Tartrate Injected Intravenously. Raymond A. Vonderlehr, M. D., Richmond, Va. 309

ANALYSES, SELECTIONS, ETC. 310

THE TRUTH ABOUT MEDICINE 312

BOOK ANNOUNCEMENTS 314

EDITORIAL 315

NEWS NOTES 317

OBITUARY 326

INDEX OF ADVERTISERS—Advertising Page 5.
(For Society Announcements, see page 32).

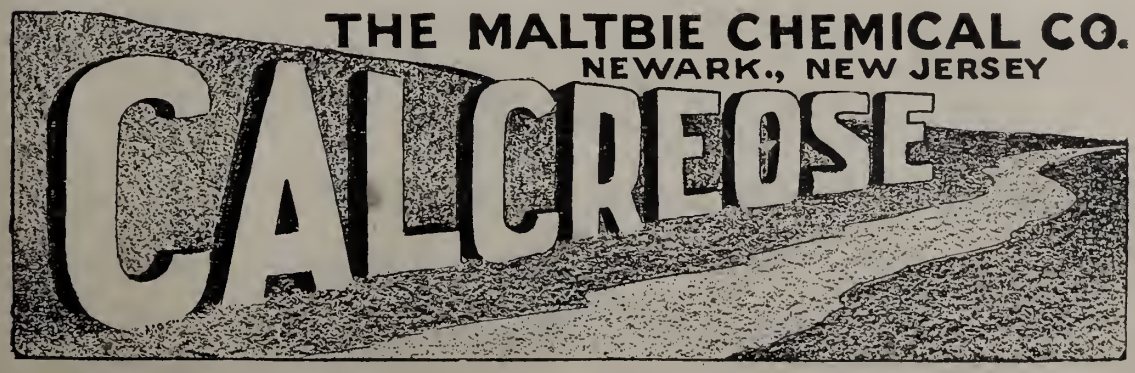
General Medication in Tuberculosis

"CALCIUM—Certain it is, that patients, especially children, often improve with increased amounts of calcium in their food or as a medicament."

"CREOSOTE—It seems to be true that many patients have improved appetite under its stimulant or irritant action in the stomach. It may also for a time improve digestion, and the patient often adds weight. During this period there is frequently a lessening of the bronchitis, and, therefore, a decreased expectoration, and with this decrease of the secondary (streptococcic) infection, there is likely to be less fever and, therefore, less sweating." A. M. A.: Handbook of Therapy, Ed. 6, p. 201.

CALCREOSE (calcium creosotate) is a mixture containing in a loose chemical combination approximately equal weights of creosote and lime. It has the pharmacologic activity of creosote but apparently does not have any untoward effect on the stomach.

Sample of Tablets on Request.



The Control of Infant Feeding

The Baby who is under a Physician's Supervision is like a Ship in the Hands of an Experienced Captain.

The ship is responsive to every turn of the wheel—the crew obeys every command of the captain—the *captain controls* his ship.

When the doctor prescribes a feeding formula on his own prescription blank the mother obeys his instructions, and the baby is responsive to his diet. Mead's Infant Diet Materials have no directions on the package to interfere with the doctor's prescription—the *doctor controls* his infant feeding *throughout the entire feeding period.*

MEAD'S DEXTRI-MALTOSE

Cow's Milk and Water

Mead's Dextri-Maltose (Dextrins and Maltose) is assimilated by infants in greater amounts than other sugars before reaching the limit of tolerance and is less liable to cause digestive disturbances. Mead's Dextri-Maltose, cow's milk, and water, gives gratifying results in the majority of infants intrusted to the physician's care.

MEAD'S CASEC

Cow's Milk and Water

Many physicians are finding protein milk helpful in their cases of summer diarrhoea. Protein milk made with Casec enables the mother to follow easily and accurately her physician's instructions—it will not clog the nipple. With Casec the percentage of protein can be governed by the physician at will.

Samples of DEXTRI-MALTOSE and CASEC, together with literature describing their use will be sent to any physician on request.

THE MEAD JOHNSON POLICY

Mead's Infant Diet Materials are advertised only to physicians. No feeding directions accompany trade packages. Information in regard to feeding is supplied to the mother by written instructions from her doctor, who changes the feedings from time to time to meet the nutritional requirements of the growing infant. Literature furnished only to physicians.

MEAD JOHNSON & CO., EVANSVILLE, INDIANA, U. S .A.

163 DUFFERIN STREET
TORONTO, ONT.

INFANT DIET MATERIALS MEAD'S

40 & 42 LEXINGTON STREET
LONDON, W 1

MAKERS OF INFANT DIET MATERIALS

Virginia Medical Monthly

Official Organ of the Medical Society of Virginia

Vol. 51, No. 5.
WHOLE No. 866.

RICHMOND, VA., AUGUST, 1924

20 CENTS A COPY
$2.00 A YEAR

Original Communications

THE INCIDENCE OF HUMAN ANTHRAX IN THE UNITED STATES WITH SPECIAL REFERENCE TO SHAVING BRUSH INFECTIONS.*

By WYNDHAM B. BLANTON, M. D., Richmond, Virginia.

Anthrax, as a disease among animals, has been extensively studied since the epoch making work of Pasteur and Devaine; and the mass of valuable information upon this subject is available to all. Anthrax in man, while a rare disease, has likewise attracted attention and been well investigated. Human anthrax in the United States, however, prior to the World War, was a disease associated chiefly with workers in wool, hair and hides. It was, therefore, a disease peculiar to localities in which these industries thrived. In the United States during the years 1918 to 1919 numerous cases of anthrax occurred suddenly and often disastrously in the Army Training Camps.[1] For the most part these cases of anthrax in the Army were thought to be traceable to infected shaving brushes. The exigencies of the war allowed the shipment of hair and hides direct from wild Siberia, China and other countries, which previously had been inspected and sterilized in France and Germany.[2]

The local outbreak of anthrax around industries which handle animal material subject to infection, may be interesting enough, but it does not affect the civilian practitioner at large and unless he has seen anthrax in a center such as Boston or New York, or unless he encountered it in the Army, the disease is apt to have only a passing interest for him. However, if it can be made apparent that sporadic anthrax does occur widely disseminated throughout the United States, the interest of the civilian practitioner should be aroused. I believe there is enough sporadic anthrax to make it worth while for every doctor to be conversant with its manifestations and management. This paper deals especially with the incidence of the disease in the United States and with the shaving brush as a factor in its spread.

*Read before the Junior Medical Society of Richmond, January 25, 1924.

Anthrax is still a widely disseminated and very prevalent disease among those animals which of necessity constitute the bulk of the source of our hide and hair industry. These products ultimately in one form or another are scattered over the whole country. If they are effectively sterilized, they are of course safe. If sterilization is ineffective they naturally become the source of widespread dissemination of this disease. In 1918, a government investigation of the sterilization of shaving brushes showed that "some establishments made no pretense of sterilizing hair or bristles."[2] The same publication advised that brushes should be sterilized by soaking four hours in a 10 per cent solution of formalin and agitated at a temperature of 110 F. In admitting that sterilization is unsatisfactory we necessarily recognize the conditions under which sporadic anthrax will continue to occur. As anthrax has a high mortality when unrecognized or improperly treated, but a relatively low mortality when recognized and promptly treated, it behooves every doctor to inform himself concerning this disease.

The mistake has often been made of not recognizing anthrax. Many of the fatal Army cases, as well as those of civil life, were not recognized until too late for treatment. It has been mistaken for mumps. It has been regarded as a virulent infection demanding surgical incision and drainage. Frequently death and autopsy alone have settled the question. To superficial examination such mistakes seem natural. An insignificant lesion surrounded by massive oedema, or a charred black eschar surrounded by marked swelling, with no complaint of pain, just a little backache, headache, malaise, moderate elevation of temperature and leucocytosis, should at once arouse suspicion and lead to a bacteriological examination of the exuding serum.

Case

Complaining of a swelling of his face, an otherwise healthy young man was seen for the

first time on October 28, 1923. There was a large disfiguring swelling on the left side of the face, centering about a small vesicle, the surface of which had been broken and from which yellow serum was discharging freely. The vesicle lay about three inches below the outer canthus of the left eye. The left eye was almost closed by the swelling, which also extended downward below the angle of the jaw. There was no redness, no tenderness, no enlarged neighborhood glands.

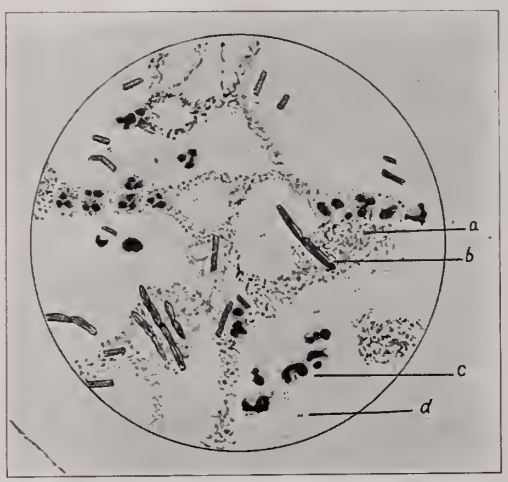


Fig. 1—High power drawing of smear taken immediately after patient was first seen. Numerous bacilli.

The young man stated that on the previous day he had noticed the swelling for the first time. A physician who saw it advised incision.

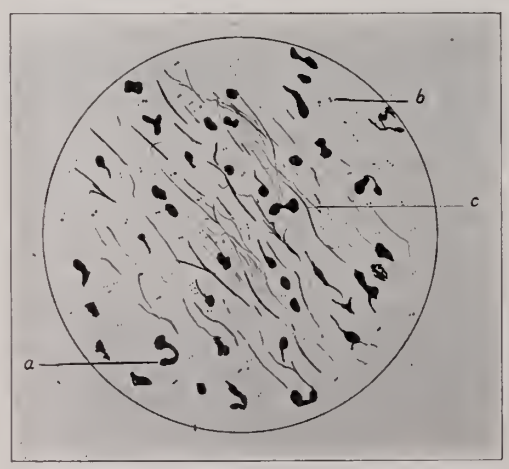


Fig. 2—High power drawing of serum from wound 24 hours after first dose of anti-anthrax serum. No bacilli seen.

This was not done because the young man felt hot and chilly, had a headache and sought other advice. He stated that about two weeks before he had purchased a fifteen cent shaving brush. His temperature was 102. His pulse and respiration were but slightly altered. Smears of the exuding serum were immediately examined and shown to contain numerous large gram positive blunt pointed bacilli. Cultures of this serum the next day showed long chains of square pointed bacilli, and guinea pig inoculation proved rapidly fatal, with recovery of the same organism. The diagnosis of cutaneous anthrax seemed, therefore, well established, and within twelve hours the patient was receiving anti-anthrax serum intravenously and subcutaneously. The initial dose was 100 c.c. by vein and 100 c.c. under the skin. On subsequent

Fig. 3—Photograph showing eschar with surrounding swelling on fourth day of disease.

days the patient received 100 c.c., 70 c.c., 70 c.c. and 20 c.c. The local lesion changed rapidly; the vesicle being replaced by a black eschar surrounded by a fringe of small vesicles beyond which the original oedema still extended. The oedema subsided fairly rapidly, so that very little remained by the eleventh day. The eschar, however, persisted as a tenacious black slough for a month, when it came away leaving a deep pitted scar. The temperature did not go above 102. On the second day after the administration of serum it began to drop rapidly, and on the fifth day reached normal. The blood count which was normal on the fourth day of

the disease began to rise rapidly. The polymorphonuclears reached their maximum on the eighth day. At this time there were 13,000 white blood cells. There was a moderate increase of the polymorphonuclear series. This delayed leucocytosis, running pari passu with the administration of serum, may possibly explain the mechanism of serum therapy, namely: the arousing of leucocytosis. The advent of eosinophilia on the eighth day, and the maximum rise on the eleventh day to nine per cent is suspiciously associated with the serum sickness which developed about that time. The patient had no other treatment than anti-anthrax serum. The rapid disappearance of anthrax bacilli from the smear was striking. Within twenty-four hours after the initial dose of anti-anthrax serum the smear was free of these organisms. This change is well shown in the two high power sketches of smears taken twenty-four hours apart. The patient's recovery was rapid and satisfactory. Suspicion was naturally attached to his new shaving brush. This was secured with that of his roommate which had been bought at the same time and place. Six other new brushes which constituted a part of the original lot were also secured. All of these brushes were cultured for anthrax bacilli, some in Richmond and some by the Hygienic Laboratory in Washington. One of the new brushes was shown to contain anthrax bacilli. The cultures of the remaining brushes were negative. This was done by the State Board of Health.

The connection between an infected shaving brush and cutanous anthrax in this case seems fairly well established.

The Incidence of Anthrax in the United States

In Italy, where anthrax may be considered a common disease, more thaan 36,000 cases have been reported in the last fifteen years.[3] Anthrax in the United States fortunately reaches no such proportions. How frequent is human anthrax in the United States? I do not know where this question is in any way answered. The text books contain only vague notions indicating that it is a rare disease. The United States Bureau of the Census has some data. The table which it has furnished me shows only the mortality from this disease in the registration area. The registration area embraces only thirty-two of the forty-eight states. To form an estimate of morbidity from mortality statistics is difficult and probably inaccurate. The following table, however, shows the yearly mortality from anthrax in the United States.

TABLE I.*

Annual Death Rate From Anthrax in the Registration Area of the United States.

Area	1921	Average Yearly
California	1	1.7
Colorado	0	.7
Connecticut	0	1.
Delaware	2	.6
Illinois	1	1.6
Indiana	1	.6
Kansas	1	.6
Kentucky	0	.7
Louisiana	2	3.2
Maine	0	.3
Maryland	0	1.
Massachusetts	0	3.6
Michigan	1	1.1
Minnesota	1	.9
Mississippi	1	.3
Missouri	0	.5
Montana	0	.2
Nebraska	0	.5
New Hampshire	0	.2
New Jersey	0	1.5
New York	6	6.2
N. Carolina	0	.4
Ohio	4	1.5
Oregon	0	.3
Pennsylvania	5	5.5
S. Carolina	1	.5
Tennessee	1	.2
Utah	0	.1
Vermont	1	.4
Virginia	1	.4
Washington	1	.3
Wisconsin	0	.6
Summary (Registration Area).	32	35.

*Modifications of a table of the Chief Statistician of the Bureau of the Census.

This table was furnished me by the Chief Statistician of Vital Statistics. It will be seen in the summary that the total number of reported deaths from anthrax in the registration area of the United States for 1921, (the last year for which there are records available), was thirty-two and that the average number of deaths for the past ten years has been thirty-five. If the states not included are put in from data we have secured from their respective departments of health, the yearly mortality from anthrax in the United States may be assumed to be about forty-six. If we also assume that the average mortality from human anthrax is about 30 per cent.* there must oc-

*In Massachusetts there have occurred fifty-one deaths out of the last two hundred and twenty-two cases—or a mortality of 23%. In New York there have occurred sixty-eight deaths out of the last one hundred and eighty-three cases or a mortality of 41%. An average mortality of 30% is therefore not far wrong.—Personal Communication.

cur about one hundred and fifty-three cases of this disease yearly in the United States. Unfortunately the Bureau of the Census has no morbidity statistics concerning anthrax. In order to discover if possible the yearly incidence of anthrax, a questionnaire was recently sent to all of the State Departments of Health in the United States. I have had forty-six answers. The facts brought out by this questionnaire are exhibited in the following tables.

TABLE II.

Average Case Incidence of Human Anthrax in the United States, Based on Questionnaire.

New York	18.	Montana	1.
Pennsylvania	18.	Maine	.8
Massachusetts	13.	W. Virginia	.5
California	10.	Wisconsin	.3
Louisiana	9.	Alabama	2.
New Jersey	8.	Iowa	2.
Missouri	7.	Maryland	2.
S. Dakota	6.	Oklahoma	0.
Georgia	6.	Kansas	0.
Illinois	4.	Washington	1.
Indiana	3.	Arkansas	"Few"
Ohio	2.	Tennessee	No record
Virginia	2.	N. Dakota	0.
Delaware	1.6	Arizona	0.
New Mexico	1.5	Nebraska	0.
Minnesota	1.3	Wyoming	0.
Connecticut	1.2	Kentucky	0.
Colorado	1.2	New Hampshire	0.
Florida	1.1	Nevada	0.
Rhode Island	1.	Vermont	0.
N. Carolina	1.	Utah	0.
Oregon	1.	S. Carolina	--
Michigan	1.	Texas	--
Idaho	1.		

From Table II it will appear that there are about one hundred and thirty cases a year in the United States. This is exclusive of Mississippi whose statistics are misleading. An estimate based on mortality statistics has been made for the two states not heard from and added into the table. It will be seen that this figure of one hundred and thirty is very close to the calculated figure of one hundred and fifty-three based on mortality statistics.

Da Costa[4] believes that there are mild and abortive cases of anthrax which are not recognized. It has been observed that anthrax in handlers of hides and hair is chiefly confined to new employees, and the inference is strong that the old employees have immunized themselves by previous small inoculations which passed unnoticed. There are therefore probably more anthrax infections than the one hundred and thirty here accounted for. Moreover, the states which report no anthrax are either not in the registration area, or in their replies indicate meagre records upon which to base an answer of value. I do not know in how many states anthrax is a reportable disease. But unless it is reportable the records of the State Health Departments must be inaccurate. If this source of error could be corrected it would no doubt add largely to the total number. When the confusion associated with the recognition of a rare disease, which may superficially simulate common infections of the skin, is taken into account, we have every reason to believe that there are considerably more than one hundred and thirty cases yearly in the United States.

TABLE III.

The Incidence of Human Anthrax in the United States Per Million Inhabitants.

S. Dakota	10.	Illinois	.6
Delaware	7.1	Minnesota	.5
Louisiana	5.2	N. Carolina	.4
New Mexico	5.	W. Virginia	.3
Massachusetts	4.6	Ohio	.3
California	3.	Michigan	.2
New Jersey	2.6	Wisconsin	.1
Idaho	2.3	Mississippi	?
Georgia	2.1	Oklahoma	.0
Pennsylvania	2.	Kansas	0.
Montana	2.	Washington	0.
Missouri	2.	Arkansas	0.
New York	1.8	Tennessee	0.
Rhode Island	1.6	N. Dakota	0.
Maine	1.4	Arizona	0.
Maryland	1.4	Nebraska	0.
Colorado	1.3	Wyoming	0.
Florida	1.2	Kentucky	0.
Oregon	1.2	New Hampshire	0.
Indiana	1.	Nevada	0.
Alabama	1.	Vermont	0.
Iowa	1.	S. Carolina	?
Connecticut	.9	Utah	0.
Virginia	.8	Texas	?

Table III gives the yearly case incidence per million inhabitants by states. Interest is at once aroused as to why certain states so far exceed others in the per capita incidence of this disease. An analysis of their industries shows that there is cattle raising as in South Dakota and New Mexico, the Morocca industry as in Delaware, wool, shoes and leather as in Massachusetts and New Jersey. The predominance of the coast states may be explained by recalling that they are the channels of all the imported infected material. The state incidence is also undoubtedly influenced by sparsity of population and variation in the efficiency of the several State Health Departments.

The Relation of the Shaving Brush to Human Anthrax

There is obvious scarcity of statistical proof of the relation of facial anthrax to shaving brush infection. Of twenty-one cases occurring in the Training Camps of this country from

1917 to 1919 only one case was proved to be due to shaving brush infection,[5] though eight others were suspicious. In the United States at large, with an average of one hundred and thirty recorded cases of anthrax per year, but two were proved to be due to shaving brush infection in 1923, and a similar number in 1922. Although there are only a few actually proven cases, there are certainly a number of very probable ones arising from this source. Thus since 1919, there have been twenty-four probable and proven cases arising from the shaving brush infection in the United States.

Most sporadic anthrax, that is anthrax occurring independent of localities in which lie industries handling infectious material, such as skin, hair, hides and wool, involves the face and neck. Scholl[6] in a review of all the cases from the Massachusetts General Hospital from 1888 to 1918 shows that more than 82 per cent involve the face and neck. It does not admit of argument that the shaving brush is by far the most common article made from possibly infected material coming in contact with the face of man. We know that shaving brushes, especially the cheaper sort, which are made from horse hair—the most dangerous hair—have been frequently anthrax infected. One lot of ten thousand were all proved to be infected.[7] A Public Health report issued in 1918 says there are "still undoubtedly in trade channels shaving brushes made from material contaminated with anthrax. Any brushes found in the market which do not bear the name or the trade mark of the manufacturer should be regarded with suspicion—without doubt there are now in the market many brushes which are potentially dangerous." Six years have elapsed since that investigation and we are still having shaving brush anthrax, as our case will prove. Are these war time brushes, we are encountering, or is sterilization as poor as it was six years ago? Where facial anthrax has been investigated the shaving brush used by the individual prior to his infection has usually been a new one and of this cheaper sort. That there are no more statistics certainly establishing this bacteriological relationship is due to several causes. Many cases have not been investigated at all. Others are investigated late, and when investigation is started the brush has been lost or destroyed. The difficulty is enhanced by the fact that even when the brush has been recovered, many bacteriologically negative reports have been obtained. Poor bacteriological technique, previous mechanical removal of bacilli through use of the brush, subsequent sterilization of the brush, limitation in the amount of the original infected material, may all account for the negative results in culture. Not infrequently, when the brush itself has been negative for anthrax bacilli, other brushes in the same lot, when examined, have shown anthrax bacilli. To my own mind, therefore, sporadic facial anthrax is most probably due to shaving brush infection. If the shaving brush was recently purchased and of the cheaper sort the probabilty is even greater. If anthrax bacilli can be demonstrated upon brushes purchased in the same lot as the one used by the infected person, very little is lacking in the establishment of the etiology. Finally, if the brush which the patient had used prior to the onset of his disease can be shown to be infected with anthrax bacilli we may be quite sure of the case. Unfortunately, as has been shown, this positive bacteriological proof of the etiology has not often been made. However, the chain of circumstantial evidence against the shaving brush can usually be well established in this type of case.

Comment

In demonstrating a case of cutaneous anthrax, in showing that there are about one hundred and thirty recorded cases in the United States yearly, and in directing attention to the shaving brush as the most fertile source for the sporadic dissemination of this disease, I believe enough facts have been brought to light to make the subject of cutaneous anthrax one of more than passing interest to the physician. Anthrax probably occurs in every state in the Union, certainly in some localities more than in others, but it is none the less a widely disseminated disease. The suspicion is not lacking, moreover, that there is considerably more anthrax than the recorded cases would suggest. With physicians keen to examine bacteriologically all suspicious lesions, I have no doubt that the recorded incidence of this disease in the United States would be greatly increased, and probably by early recognition some lives might be saved.

Bibliography.

(1) Most of these cases reported in articles appearing in the J. A. M. A., 1918-1919.
(2) Reprint No. 523, Public Health Reports, May 9, 1919.

(3) Modern Medicine, Osler-McCrea, Vol. I., p. 638.
(4) Modern Surgery, Da Costa.
(5) Anthrax in a Soldier, W. H. Norton and E. F. Kohman, J. A. M. A., 72, 1129, 1919.
(6) Anthrax: Comparison of Surgical and Non-Surgical Methods of Treatment, A. J. Scholl, J. A. M. A., 74, 1441, 1920.
(7) Editorial, J. A. M. A., June 19, 1920.

SOME THERAPEUTIC PROBLEMS OF OLD AGE.*

By THOMAS R. BOGGS, M. D., Baltimore, Md.

Any consideration of the care of the aged sick, however cursory, as must be this brief communication, should begin with some statement as to what constitutes agedness or senescence. For our purposes, age may be considered as the decline of those developmental and dynamic processes which characterize childhood and adolescence and culminate in maturity. The arrival of age is then conditioned by morphological and physiological changes and not merely by the passage of years, to which in fact its relation varies widely.

In turning our attention to the problems of old age from the medical standpoint, let us first recognize that fragility is one of its general characteristics, and applies to mental as well as to physical qualities. It is most important for the doctor to keep in mind the psychological peculiarities of the senescent in all plans for the treatment of their ailments. Garrulity, querulousness, inattention, firm attachment to old views, with a suspicious attitude toward innovation, are among the attributes of age which tax the efforts of the physician far more at times than the difficulties inherent to the combat with disease. Secret resentment at the infirmities of age may cause the patient to conceal important facts, as pride in maintaining the appearance of vigor and efficiency may lead to over-exertion, with serious results. Again there is a certain momentum or habit of living, which, if rudely interrupted by physical or psychic shocks, may break the continuity of interest in life and be followed very quickly by death, without any special development of disease. This may be illustrated on the one hand by the fatality of relatively simple injuries or ailments in old people, and on the other by the celerity with which death may follow the loss of some accustomed occupation or the change from a beloved environment.

*Read at Annual Session of the Walter Reed Medical Society of Virginia, Newport News, Va., May 15, 1924.

With these introductory remarks we may now take up a few of the many conditions in which the treatment of old persons requires a special mode of approach. We shall confine ourselves briefly to some phases of gastro-intestinal, cardio-vascular, and renal diseases, although each of these groups might easily occupy more than the allotted time.

One of the most important handicaps of age is constipation, which is brought about by several factors—loss of chewing power and the enforced selection of foods poor in fibre, diminished activity of digestion and peristalsis, and lastly the lack of exercise, so essential for its beneficent effect upon the bowel movements. Habit and idleness lead many old people to over-eating at a time when the metabolic processes are lowered and the daily requirement of food is considerably less than in the active periods of life. Decreased sensitiveness to natural stimuli results in inattention, and regular evacuation gives place to stasis, with its attendant evils, which is but poorly combated by spasmodic use of laxatives and purges.

Each case must be studied in the light of these factors and the treatment directed to the correction of as many of them as possible. Great tact may be required in persuading the patient to replace insufficient dentition by a satisfactory artificial denture. The stubborn clinging to a few useless, or positively harmful teeth has shortened the days of many.

The sytematic taking of a sufficient quantity of water, especially in the early morning and between meals, will do much to promote the emptying of the lower bowel. This may be encouraged in some cases by offering hot water to offset the chilliness often experienced after taking cold fluids. The use of bran and other forms of cellulose contained in plant foods, as spinach, lettuce, celery and the like, with fresh and cooked fruits, may be all that is required. For those who cannot take rough foods, gelatinous water-holding substances like agar-agar or the more agreeable Psyllium used by our French colleagues, may give the required bulk and moisture to the intestinal contents.

In the matter of drugs for constipation, the relative vigor of the patient will influence our selection. In general, old people not very asthenic do better with carefully adjusted mild saline laxatives, such as sodium phosphate, or mixed phosphates, and magnesium sulphate,

in doses just sufficient to produce a good stool, but not to purge. This is particularly recommended for the hypertensive cases and such as may have a concomitant cardiac or renal insufficiency. Early morning is the time of preference for the dose, though some patients in whom the salt acts very slowly, can take it comfortably on retiring and have a good result after the morning draught of water. With our present views as to the unfavorable effect of excess of sodium chloride on hypertensive cases, we should avoid those pharmaceuticals which depend on table salt to conceal the taste of magnesium sulphate.

The more asthenic patients cannot use the salines to advantage, and for these we must depend upon a rotation of milder laxatives, realizing that careful adjustment of dosage to produce constant effects is the key to success. Mineral oil is a good basis for this type of therapy, although seldom satisfactory alone, and open to the objection that weak or insensitive sphincters may permit leakage of the oil into the clothing. Cascara in pill or liquid form is well borne by the old, and this may be varied by substitution of phenolphthalein, rhubarb, senna, singly or in combination, with or without the addition of small amounts of aloin or podophyllin. Some of these old people are much benefited by administration of bile or bile salts with their laxative pill. Irritant cathartics like calomel are best avoided. Many patients require change of drugs from time to time, as one may lose its effect. The habit of dependence upon drugs to move the bowels is of secondary importance in the aged, when contrasted with the benefits derived from daily evacuation. In some of the bedridden cases frequent enemata may be necessary, and in such, great care exercised to avoid setting up inflammation in the rectum, either through trauma from the rectal tube, or the use of irritating solutions. In our experience, normal saline or bland oils are safer than plain water or soapsuds. Among the more ignorant as well as the mentally impaired senile patients, we may not rely too securely on the statements as to bowel movements, or their faithfulness to the regimen prescribed. In such instances the actual condition of the bowel should be checked up by digital examination in order to forestall impaction, which, when severe, may easily prove fatal.

Directing our attention now to the senile heart we find that the complaints of patients arise largely from two groups of phenomena,—those due to the irritability which increases in old age, and others associated with the retrogressive changes which senescence brings about in the heart muscle. The principal manifestations in the irritable heart group are tachycardia and certain forms of arrhythmia arising from stimuli in the autonomic nervous system. This group constitutes the greater part of the "palpitations and dropped beats" of older people—and causes much physical discomfort and worry. When we keep in mind the fact that under normal conditions we are essentially unconscious of our hearts, and that we naturally translate any sensations calling our attention to this organ as something seriously wrong, we can be truly sympathetic with the anxiety of the patient, though we in our superior knowledge recognize it as a matter disagreeable but not alarming. Time spent in carefully explaining the true nature of these phenomena will go far to reassure the patient and retain his confidence, while passing it over lightly may give him the impression that we are concealing some grave condition from him.

The forerunners of myocardial disease, including the hypertensive group, are many and but little understood. It is certain that severe infections play an important part, as has been shown for pneumonia, syphilis, and typhoid fever. Chronic recurrent infections of a milder sort, often arising in tonsils, sinuses and bad teeth, are doubtless also responsible for gradually increasing fibrosis of the heart. Whatever factors produce strain and raise blood pressure may in time result in impairment of the coronary circulation and be followed by myocardial degeneration. Hard labor, exposure to extremes of temperature, abuse of alcohol and tobacco, the constant work of carrying and nourishing excess fat, may all contribute to the gradual extinction of muscle fibres and their replacement by connective tissue. Of these agencies obesity is probably second to none in importance and the profession has long ceased to share the popular view that fatness is a sign of health. Obesity is not a frequent accompaniment of old age, for the reason that the fat die earlier, but as a precursor of senescence before its proper time it is so important as to demand our consideration.

Chronic valvular endocarditis, in those who have survived to be old, is commonly so well

compensated as to be at most of minor import, becoming prominent occasionally in valetudinarians, who have been told thirty years ago by some injudicious doctor that they had a "leaking heart and must avoid all exertion."

With this resume of the causes of irritable and weak hearts in the aged it seems evident that dietary errors, immediate and remote, may be exceedingly important sources of both functional and organic maladies. In the former, the overloaded or gas-distended stomach gives rise to tachycardia or arrhythmia through vagal stimuli, while habitual over-eating is a factor in the second group comprising the hypertensive, arteriosclerotic and myocardial cases. It follows that any logical consideration of the treatment of senile heart disorders must include diet, general hygiene, and drug therapy—perhaps best in the order named.

It should be our endeavor in the care of the senile heart case so to adjust the dietary as to relieve the immediate emergency, and to postpone or prevent its recurrence. Our aim will therefore be to give small meals at sufficient intervals to permit of complete gastric digestion, and to select the foods with a view to maintaining a proper nitrogen balance and to decreasing or preventing the accumulation of fat. In addition, when cases show water retention, special care must be had to promote its elimination by restricting water intake.

For the irritable heart cases therefore the diet should be so ordered as to combat overfilling, pyrosis, gaseous distention of the stomach, and flatulence. To this end we direct a bland diet of simple well-cooked foods, avoiding soups, fried foods, excess of fats in any form, and carefully limiting the carbohydrates to meet the actual necessities. Thus any lean meat once a day, fish of the easily digested kinds, eggs, and milk in various forms, will be the basis of the protein ration. For bulk and to furnish water soluble vitamins, the leaf vegetables, raw or cooked, except the cabbage and cauliflower group, and the tenderer root vegetables should be given, while the acid vegetables and fruits are not permitted at all. Cereals, mealy potatoes and well cooked bread for the carbohydrate portion. Simple desserts in proper quantities, such as gelatines, custards, bread puddings, cooked fruits, and ice-cream or water ices if desired. Weak tea with lemon or cream and sugar, or a small cup of black coffee may usually be permitted, while chocolate and cocoa are not so easily digested and must be excluded in many cases. Water with the meal limited to one glass not too cold, the balance of the daily water ration to be taken between meals when the digestion is well advanced. Many asthenic old people do better to drink hot water. A small allowance of whisky and water or light wine, when a good quality of these can be obtained, may be valuable in the treatment of those who have been accustomed to their use. When there is evidence of genuine deficiency of gastric juice or of pancreatic ferments, as shown in the character of the stools, these may be supplemented by proper doses of pepsin and hydrochloric acid, or by the administration of diastase or pancreatic extracts in appropriate cases. The promiscuous dosing with proprietary so-called digestive tonics is to be deplored.

Organic heart cases of the myocardial group demand, first of all, that the work imposed upon the heart by digestion be reduced to a minimum, whether or not edema is present. For these, in the first period of treatment, a low diet of 800 to 1,000 calories is the best beginning, together with a strict limitation of the fluid intake. Carrel's diet of whole milk every two or three hours, hot or cold, and not in excess of 1,200 c.c. (40 oz.), is readily applicable to most cases. After compensation is restored, we gradually resume a maintenance diet along the line laid down in the foregoing section, having special care of excess of fluids and restriction of table salt.

Of general hygienic measures, exercise is most important, though much neglected in the aged. The majority of these heart cases whether functional or organic can take some graduated exercise with benefit, except where motor disturbances prevent, or during the stage of decompensation. Of all exercise, walking is the best and easiest regulated to meet the needs of the individual. The walk may be taken on a porch or out of doors when the weather permits, indoors when the day is inclement. In less favored cases massage and passive motion, supplemented by drives, must be substituted. Warm baths with skin friction afterwards promote vascular tone and impart a sense of well-being.

Drug therapy for the senile heart must be on the same lines as for younger persons, but in general with lower dosage. The irritable hearts are benefited by mild eliminants, and those agents which raise the threshold of

stimulation. Of these, Potassium Iodide, in doses of five to ten grains after meals, will always hold a secure place. Bromides too, in small amounts, will often control tachycardia of the simple type, while in more stubborn cases Quinine, in two or three grain doses three times daily, may prove most efficacious. Some of the reflex attacks associated with gastric distention and eructations may be corrected by carefully graduated administration of belladonna or hyoscyamus before meals.

For the weak muscle, digitalis is the drug of preference, and, properly given, will do all that may be done to restore the tone of the heart and relieve vascular stasis. In my experience, after treating the decompensated by thorough digitalization, it is desirable in many of the senile myocardial insufficiencies to administer, indefinitely, a small amount of the drug as a daily tonic. For the latter purpose I have found nothing quite so satisfactory as the granules of Digitaline Nativelle, ¼ milligramme (1/250 grain), twice daily. This is a French preparation of pure digitoxin, much more constant and powerful than the digitaline of our pharmacopoeia. In paroxysmal tachycardia and auricular fibrillation occurring in the aged, it is possible to get good results from the new quinidine therapy in a fair proportion of cases, when the trouble is not of too long standing. Codeine and morphia may be required at the first stage of treatment in decompensation, but should be used sparingly and dropped promptly. They should never be given to the functional cases at all.

A word of warning in regard to purgation in waterlogged senile heart cases. The purges so admirable in their effect on the stronger patients with edema, are very ill borne by the old, on account of the exhaustion they cause. It is far better to depend on fluid restriction and mild laxatives than to have your patient die from over-exertion on the commode.

A few observations on the kidney function in old persons, and I shall tax your patience no longer. A trace of albumen and a few hyaline casts, as pointed out long ago by Osler, are of no special significance in persons over fifty. The demoralization and worry caused by telling such patients, otherwise in good average condition, that they have Bright's Disease, is a reproach to our profession. We must not confuse the qualitative change in the urine with the ability of the kidney to perform its daily work with a comfortable margin of safety. If we find that the total output of urine is in reasonable proportion to the intake of fluid, and that the kidneys retain power to concentrate the solids fairly well, especially if there be no severe fixation of the specific gravity in the individual specimens taken through twenty-four hours, we may regard the presence of albumen and casts alone as of secondary moment. On the other hand the continued or frequent presence of red blood cells, or of pus cells, not derived from the bladder or urethra, must awaken our interest in determining just what they may signify as to more serious disease of the kidneys.

In the aged severe uremic manifestations may be preceded for a long time by milder evidences of retention of waste matter, which, if heeded, will often give the opportunity for correction by prompt measures. Unusual somnolence or drowsiness, with or without twitching, or extreme irritability, should not be passed over until we are sure that there is no evidence of renal insufficiency. Saline purges, diuretin or theocin, or hypodermic administration of sodio-caffeine benzoate in good doses at this prodromal stage, will often clear the system at once, while more resistant cases passing toward coma should have intravenous glucose if other methods fail. I have not found Basham's mixture, infusion digitalis or citrate of potash efficient in the old, and venesection, which may save the vigorous uremic in middle life, is almost surely fatal to the senile. Chronic renal insufficiency, with edema or nitrogen retention, will require dietary handling similar to, though not so strict as that employed for younger adults. The cerebral irritation and other symptoms in interstitial or glomerular nephritis may often be much relived by restricting table salt.

Up to the present time no form of glandular therapy recommended for the treatment of renal diseases has any basis in fact, notwithstanding the literature distributed by those interested in selling such products.

In closing I can but emphasize what has gone before, that the old are somewhat like the very young, fragile, fanciful, and easily frightened, and that our success in caring for their ailments will be measured not alone by our medical knowledge, but by our tact, candor and patience.

1013 *North Calvert Street.*

ARSPHENAMINE DERMATITIS. REPORT OF A CASE TREATED WITH SODIUM THIOSULPHATE.*

By B. E. HARRELL, M. D., Norfolk, Va.

The following case is of interest only in regard to its treatment. It is reported chiefly to call attention to the drug employed, as we believe it offers a distinct advance over anything yet devised for the handling of a very unsatisfactory group of cases.

The treatment is based on the fact that many of the heavy metals, particularly arsenic, mercury, lead, bismuth, zinc, and copper may be precipitated in inert form by non-metallic sulphur. In case of poisoning with any of these, if we can bring about this precipitation we at once put an end to its toxic action and allow the body to begin the process of repair. The prospects of recovery and the period of disability will naturally depend on the extent of the damage before treatment was undertaken.

The sulphur compounds that have been used for this purpose are: calcium sulphide, calcium sulphite, and sodium thiosulphate. Of these, the last has found most favor, as it is readily soluble and is not toxic in doses up to two grams, intravenously.

P. Ravaut was the first to use sodium thiosulphate in the treatment of arsphenamine dermatitis. In this country McBride and Dennie have reported numerous cases of arsenic and of mercury poisoning successfully treated in this manner. Ockerblad reports a case of lead poisoning with profuse hematuria whose hematuria disappeared on the second day and who was discharged at the end of two weeks.

McBride and Dennie claim that sodium thiosulphate converts all these toxic metals into the non-toxic, insoluble sulphides and that it is the treatment of choice in poisoning with arsenic, mercury, lead, bismuth, etc.

Intravenous administration is preferable. For this purpose only a chemically pure, sterile sodium thiosulphate should be used. If such a preparation is not available, it may be given by mouth in doses of from one to fifteen grams in solution.

The technic of McBride and Dennie in a typical case of arsphenamine dermatitis is as follows: an initial dose of 0.3 Gm. is given intravenously; on the second day 0.45 Gm.; third day 0.6 Gm.; fourth day 0.9 Gm.; sixth day 1.2 Gm.; eighth day 1.8 Gm. This is usually sufficient for a severe case.

In acute bichloride poisoning the technic is the same except that in addition to the above, 15 Gms. in a pint of water is given by mouth, followed by 1 Gm. t. i. d. As a rule, fewer injections are required for the mercury than for the arsenic poisonings and the results are even more striking.

Case Report

A colored man, age 37, was admitted to the hospital three weeks after his sixth dose of neoarsphenamine with a diffuse, weeping arsphenamine dermatitis involving entire body, extremities and face. The exudate was of such severity that the underclothing was kept damp and small droplets were constantly appearing on the face. The hands and feet were much swollen and showed numerous blebs a cm. or more in diameter. There was a well marked conjunctivitis. Temperature 103, pulse 108, W. B. C. 28,000.

There was no intravenous preparation of sodium thiosulphate available, so he was given an initial dose of 2 Gms. by mouth followed by 1 Gm. t. i. d. The following morning the temperature had dropped to 100, he was feeling much better, and his appetite had returned. At the end of forty-eight hours the temperature had dropped to 99 and the body was dry. The following day the temperature was normal, there was no moisture anywhere, and the hands and feet were beginning to desquamate. On the seventh day the conjunctivitis had disappeared and the patient was walking about the ward. Numbness and tingling which had been very troublesome soon after admission had also disappeared.

He was discharged on the eleventh day. At this time desquamation was complete over body and was well advanced on hands and feet. The general condition was excellent.

The W. B. C. were 28,000 on admission and dropped to 17,000 on discharge. The eosinophile count rose gradually to twenty per cent on the fourth day and dropped to normal on discharge. Small mononuclears were only seven per cent on admission, but rose to twenty-four per cent on the sixth day.

The urine showed neither albumen nor casts.

When this patient had been in the hospital about a week he suddenly developed a diffuse, chocolate pigmentation over the entire body

*Read before the Norfolk County Medical Society, May 12, 1924.

and extremities, most marked over areas most affected by the dermatitis. Now, after three months there is little if any change in its intensity. I do not believe this pigmentation can be laid to the treatment. In the literature of arsphenamine reactions it is repeatedly described and is mentioned by Cushney as a not infrequent sequel of chronic arsenic poisoning.

This patient remained in the hospital eleven days. The only other similar cases whose records are available have remained in the hospital about three months.

There is nothing specific about the so-called arsphenamine dermatitis. It has been observed following the administration of all the different preparations of arsphenamine and neoarsphenamine, following sodium cacodylate, small doses of Fowler's solution, following a single injection of mercuric salicylate, and a similar reaction after merely painting the skin with iodine.

Stokes and Keidel each report two cases of such reaction in which syphilis was known to be absent.

We may say, then, that this dermatitis does not depend on the kind or amount of the arsenic preparation administered, nor does it depend on the presence of syphilis.

Moore and Keidel report twenty-one cutaneous reactions in 47,000 injections. Stokes and Cathcart report thirty-eight reactions in 43,000 injections. These figures would indicate an incidence of one reaction in about 1,500 injections.

Reactions show no preference for either sex. However, they are about three times as frequent in the white as in the colored race.

There is a possibility that a defective lot of arsphenamine may be responsible for the reaction in an isolated case. Neoarsphenamine deteriorates decidedly after six months, and still more rapidly if kept at room temperature or higher. Age apparently has no effect on old arsphenamine. However, most authors are unable to demonstrate any connection between the reaction and a defective drug.

The hypotheses advanced to explain these reactions are about as follows:

(1) Toxic Action of Arsenic on the Bone Marrow

The most prominent feature of the blood picture of arsphenamine reactions is a marked alteration in all leucoblastic cells of the bone marrow. The lymphoid elements are usually unchanged. There is an absolute and a relative decrease in the polymorphonuclear neutrophiles which may go as low as 600 per cmm. Often these cells are unusually fragile. Eosinophilia is a frequent finding, ranging from five per cent to fifty per cent. There is often a marked increase in the large mononuclears which may reach unusual heights. There is usually no change in the red cells or the hemoglobin.

These blood findings are common to the milder reactions such as urticaria herpes, erythema, etc., as well as to exfoliative dermatitis, and have led to the belief that they are all members of the same general group.

We have just seen that damage to the bone marrow results in destruction of the normal phagocytic cells. It has been shown that when normal function of the bone marrow is interfered with, antibody formation is inhibited. Thus the normal defences of the body are lacking and these cases are left especially liable to infection. This is a frequent and troublesome complication of arsphenamine reactions. When it occurs a leucocytosis replaces the initial leucopenia.

(2) The Cumulative Effects of Arsenic

Just how long arsenic is retained in the body is unknown. It has been found in the urine ninety-seven days after its adminstration. It is assumed that if the permeability of the kidney is impaired, as by the simultaneous administration of mercury, arsenic gradually accumulates in the body till a toxic level is reached, and that the skin then takes on the function of excretion and the irritation of the drug produces the dermatitis.

There is no uniformity of opinion as to the presence of renal impairment. Moore and Keidel claim that there is more or less damage to the kidneys in eighty per cent of their cases. Stokes and Cathcart state that their patients who had cutaneous reactions showed no evidence of renal injury before the attack and that their worst case had not had mercury.

(3) Damage to the Liver

It is well established that arsenic does produce structural changes in the liver. Following arsphenamine poisoning autopsy has frequently shown acute yellow atrophy, central necrosis, or marked fatty changes. In one case almost two grains of arsenic was recovered from the liver. On the other hand some cases

present no demonstrable evidence of liver injury.

Arsphenamine probably undergoes some modification in the body. It quickly disappears from the blood stream, is deposited chiefly in the liver and is released in some form presumably less toxic than its original state.

Voegtlein finds that arsphenamine as such is not directly toxic for the spirochaete in the tissues of the higher animals. He believes that it must first be metabolized in the body to some active modification before it can exert its therapeutic action.

It is conceivable that if liver function is impaired, arsphenamine may accumulate in the liver, or it may be allowed in the circulation in some toxic form and lead to a reaction.

None of these conceptions are wholly satisfying since they do not explain recurrences after minute doses of arsphenamine.

(4) Hypersensitiveness or Idiosyncracy

Stokes is impressed with the association of focal infection with arsphenamine reactions in the sense that he is dealing with an already sensitized or unstable patient. Out of twenty-four patients developing reactions in which he had accurate histories, thirteen had had some form of dermatitis prior to coming to the clinic. In his series of thirty-three cases, twenty-seven had some focus of infection. The remaining six without demonstrable foci developed reactions of the mildest grade.

Attempts to remove foci during a dermatitis were disastrous. They were followed by a prompt flare-up of all symptoms, with fatal results in two cases.

A hypersensitiveness may persist for months or years after the original reaction has subsided, as shown by the occasional return of localized dermatitis. There is also a marked tendency for the rash to recur on further attempts to administer the same drug even in minute doses. One such recurrence is reported following the administration of less than four-thousandths (0.004) Gm. of silver arsphenamine.

The mechanism of arsphenamine reactions is not entirely clear. No attempt is made to explain all reactions as due to a single cause, but it is probable that in most instances we are dealing with a patient that is already hypersensitive and that arsphenamine is merely the factor that precipitates the cutaneous explosion.

Note

Since this paper was written we have had the opportunity to follow several cases of poisoning treated with sodium thiosulphate in other hands. A case of arsphenamine dermatitis, almost an exact replica of the case reported, received the same treatment and was well in ten days. Six cases of bichloride poisoning, with one exception, made prompt and satisfactory recovery. The fatal case received sodium thiosulphate when practically moribund five days after the ingestion of thirty-five grains of bichloride and died about twenty-four hours later. This case was considered hopeless when the treatment was given. In the other five cases there was a marked improvement over night, recovery was uneventful, only one patient remaining in the hospital as long as a week. No ill effects from the treatment were noted.

625 *Massachusetts Ave.*

ON THE MEANING OF DEMENTIA PRAECOX.*

By JAS. K. HALL, M. D., Richmond, Virginia.
Westbrook Sanatorium.

The term dementia praecox—I wish it might be replaced by good, simple American words—implies deterioration of all the immaterial attributes of the individual. It implies lessening of intellect, of feeling, and of spirit. The patient in the grip of the established malady is well on the way back towards that lower animal kingdom out of which the evolutionist tells us we have so slowly and so painfully come. We are not surprised by the appearance of evidences of mental failure in the aged, however much we may be distressed by the decay. No other condition, however, unless it be epilepsy, so tears at the heart-strings of parents as the gradual development of progressive loss of mind in a promising and a beloved child. It is a calamity so peculiarly distressing that it can be talked of by father and by mother only to their physician and to the God whom they worship. It is accounted by them life's greatest sorrow. It is looked upon as worse than death, because it is a long-drawn-out death of mind—and of personality—and—of their fond hopes. It is worse than terrible.

*Read before the Richmond Academy of Medicine, April 8, 1924.

Its cause or causes?—do I hear inquiry about its origin and the reasons for its development? Little of specific value is known of heredity in relation to disorders of the mind, but more than 50 per cent of all cases of dementia praecox have poor mental or nervous endowment in their immediate ancestry. But the affection may appear in one child in a large family, the others of whom may be not only normal but even brilliant. Contrary to public opinion, the affection is especially prone to develop in those in whom the mind is inherently weak. Acute illness may call it forth. Some of the stresses of life appear to induce it. I have little doubt that many of the mental casualties of war developing in young soldiers and referred to popularly as shell shock are, in reality, cases of genuine dementia praecox. Some undiscovered defect in make-up unfitted them for the instant and rigorous adaptations called for in war, and they have been added to the great human junk heap left by the military cataclysm. Childbearing and the care of baby after baby in rapid succession not infrequently seems to bring about this peculiar form of mental wreckage in young women. Poverty, poor food, stunted physical development, too much stress and strain in school, religious excitement, unhappy home-life, brutality of parents and bad upbringing, occasional injuries to the head, excessive indulgence in alcohol, the looseness and the unrestraint of the customs and the times in which we are living—all these unhappy circumstances are probable factors in the production of this wide-spread blight. The sexes are dealt with almost impartially. Most of the cases develop before the twenty-fifth year of life. When the road is open and straight before, and the journey has been well—sometimes brilliantly, begun—this great obstruction uprears itself, progress stops, and the backward journey is begun.

Recognition of the condition in its beginning is important. What signs, you may well ask, proclaim the stealthy approach of this dreadful malady? Oftentimes it comes as the further unhappy deepening of queerness in a young person who has always been more or less different from others—shy, seclusive, precociously pious, given to day-dreaming; one who has not joined heartily in the robust activities of boyhood or of girlhood. But not infrequently it develops in a young person who has enjoyed vigorous physical health and who has been free from eccentricities and well up to the mental normal. Occasionally praecox falls like a blight upon a student making a brilliant record in school or in college. The patient's first complaints, if there be complaints, often refer to some portion of the body—to some visual trouble, to digestive disorder, headache, inability to sleep, palpitation of the heart; reference is made often to the sexual organs, and fear about the condition of these organs is often sharpend by acquaintance with shrewd, quack medical literature. I have little doubt that an abdominal operation is sometimes performed as the result of the hypochondriacal complaint of a patient in the early stage of dementia praecox. Such hypochrondriases are so marked, at times, as to deceive the most careful. I know a patient in a state hospital at this time in profound dementia in whom praecox manifested itself first by complaint of visual disorder when the young man was a university student at the age of eighteen. Repeated eye examination found no basis for the complaint. The gradual development of frank mental disorder soon justified the diagnosis of dementia praecox. Such unhappy notions about the condition of some portion of the body exhibit themselves in the young person's mood. There is a noticeable, if not profound, change in personality. Abstraction, depression, a tendency to withdraw from companionship is the striking early feature of change in conduct. Loss of lively interest in matters that were formerly all-absorbing is generally striking—in studies, in play, in work, in plans, in hopes. Irritability and petulance are not unusual. Sweet-tempered consideration for others may be replaced by selfishness, roughness of behavior, profanity, violence, drunkenness, sexual assaults, thefts and other evidences of lack of normal self-control. I have known young people in the early days of this disorder to go to bed in a darkened room and to remain there week after week, covered head and foot, in confession, as it were, that the battle with life is already too much for them. A brief period of depression is undoubtedly common, but not infrequently there is early restlessness of mind and of body, and the boy or the girl who feels its irresistible urge cannot remain in school, in the home, or at work, and there may be incessant and purposeless wandering, especially at night. Sooner or later delusions express themselves in speech or in behavior. Generally, I am inclined to think, these early delusional ideas are depressive—

there is the fear of disease of some part of the body, the soul may be lost, the girl may fear that she is pregnant, the boy may believe himself charged with a crime, the officers are coming for him, and he will be executed. Occasionally expansive ideas may be dominant from the beginning. One of my patients felt himself competent to invent a number of devices: another planned to take his fellow-students, with whom he appeared in a play at the close of school, on the road to give dramatic performances. Frequently imaginary voices are heard as the disease makes progress; sometimes these hallucinations are pleasant, the voices of angels or of God; more frequently they are the voices of enemies telling of poisoned food, the plans of the officers, and the purport of the law. Voluntary attention cannot be sustained: continuous mental work, consequently, becomes impossible; if the condition be unrecognized in school, punishment only aggravates the situation. Apparently unprovoked, foolish, silly laughter is an outstanding symptom, and causeless tears, unassociated with any deep emotional feeling, are another evidence that something has gone wrong with the normal connection between the emotions and the intellect.

The general symptomatology varies sufficiently to justify at least three groups of cases.

(1), Hebephrenia; (2), Catatonia; (3), The Paranoid Type.

The first group includes the majority of cases. The outstanding feature of this group is simple, more or less slowly progressing, loss of mind and of emotional activity, with comparative absence of active delusions and hallucinations. The catatonic group includes the most interesting and complex cases. Profound stupor, in which the patient may lie as if dead, speechless and unmoving, for weeks or for months, may change without a moment's warning into the most aggressively violent and dangerous behavior, or such a patient may suddenly become apparently rational, and resume approximately normal life. *The Associated Press* may pass all 'round the world, for example, the strange story of Lena Becham, who suddenly came out of profound sleep, from which none of the great specialists could wake her, got up and got breakfast and then went, her own sweet and well self, to the meeting of the Foreign Missionary Society. If a medical or a religious quack have charge of such a patient when the miraculous transformation takes place, his practice and his standing are immediately established; if a doctor be in attendance, the family may insist upon knowing why he did not give that particular medicine long ago, instead of making useless visits day after day. But the remission does not last, relapses take place, and the hope of the family, the charlatan, or the doctor, leads only to disappointment. The paranoid type of the disease is troublesome to manage. Here the intellect fails more slowly, ideas of persecution give trouble, law-suits may have to be defended, quarrels in schools and in churches are occasional unrecognized symptoms, and gross violations of law, assault, arson, or murder, call for medical interpretation.

In the developing stage of the disease the diagnosis is not easy, and time—sometimes weeks, more often months—is necessary for the formulation of a diagnosis for which there can be much respect. Simple-mindedness, hysteria, neurasthenia, peculiar types of epilepsy, manic-depressive insanity, paresis, sleeping sickness, brain tumor, and feigning for the purpose, all must be considered. No other condition in the domain of disorder of the mind presents such variable and ofttimes contradictory manifestations. The most careful, detailed, conscientious study of each case is absolutely necessary. But after the diagnosis has been made the prognosis—the outcome—can be foretold. In practically all cases dementia results—loss of mind, loss of emotional activity, loss of judgment, loss of memory, loss of yearning, loss of all the distinctive human attributes. A vegetative existence on the back wards of a state hospital—that is the final stage—scarred and marred, sand-strewn, barren, unproductive, like our own beautiful James River valley after a great flood.

But before the dementia has come, and before commitment to an institution has been made, while the individual is still a member of society, grave conflicts may arise. In the home the patient is likely to be a source of anxiety, if not a real menace. In school the praecox patient cannot adjust himself, and he can make no mental progress. His occasional truancy, unmanageableness, badness, or stupidity, may be unrecognized as first evidences of the on-coming dementia. In industry, where skill and judgment are necessary, such an unfortunate can make no progress, and he

seeks job after job, because he is mentally unable to make good. Occasionally these dementing youngsters enter upon a professional career, and the ministry, probably because of its emotional appeal, not infrequently, it seems to me, calls alluringly to them. The very nature of their affliction makes it impossible for most of them in the outside world to make the conventional adjustments, and they frequently violate the law—generally out of genuine stupidity; but, often, with a great air of braggadocia, they disregard the prohibition law, show no respect for traffic regulations, and are brought to the bar as speed-demons. Many of them—may God forgive our ignorance and our stupidity—find their way to the chain gang, the jail, the penitentiary, and some of them undoubtedly sit for a brief, final moment in the great, wooden chair in the penitentiary.

Is some one making inquiry about treatment? If the offspring could make choice of ancestry how many men and women would remain unwedded, and how many married would remain childless? Of all the animals that walked down out of the ark what others breed with such recklessness as the human? Preventive treatment should begin, as Oliver Wendell Holmes long ago said, centuries before the individual's birth. Figs cannot be gathered from thistles. But if bad parentage be not avoidable, bad upbringing may be; the young person in whom praecox tendencies are showing themselves should be cautiously educated—slowly, carefully, and prize-winning efforts should not be encouraged. Manual training is less taxing and more fitting for such an one than intellectual. The mental tip-toeing called for in preparation for a professional life is apt to end disastrously. Such youngsters as are liable to develop dementia praecox should be kept out of war. They are being added in large numbers to our present pension rolls. They are, likewise, unfitted to delve into the profound things of life—such, for instance, as religion, and other forms of philosophy. Their mental diet should be plain and simple and easy of digestion. After the attack has come attention must be paid to what mental remnant is left—and it should be trained and made use of. Further deterioration is hastened by idleness. In state hospitals many of these cases who have come down in mentality to a low plane live rather useful, fairly productive lives. But their hands must find simple, uncomplicated work, and it is better for it to be in the out-of-doors; and their bodies must go and come in response to the sound judgment of another. In the low grade of dementia which many of these patients reach there can be no sort of purposeful activity.

But is no word to be said, does some one ask, about the meaning of the malady? Would you have me speak no longer in terms of medicine, but in the vernacular common to the times? Must I attempt to define the affection, not in words, but in terms of dollars and cents? The fiscal year of the state institutions for the care of the mentally abnormal closed on September 30th in Virginia. During that twelve-month period there were admitted into the three state hospitals for the insane 1,368 patients; and into the colony for the epileptic and feeble-minded 190—a total of 1,558 mentally unsound people, placed by legal commitment under the care of this state.

Dr. W. F. Drewry, until recently for many years superintendent of the State Hospital for the colored people at Petersburg, tells me that at least 30 per cent of these admissions are cases of dementia praecox. That statement means that during the last fiscal hospital year about 370 individuals afflicted with this poorly understood mental malady became wards of Virginia. At the close of the last fiscal year the total population of the state hospitals and the colony for feeble-minded in Virginia was 5,872. If one-third of these patients have dementia praecox that means that almost 2,000 cases of this affection are at present under the care of the state.

The average annual cost of maintaining a patient in a state hospital cannot be—it certainly should not be—less than two hundred dollars. The praecox admissions alone to the state hospitals in Virginia each year cost the state treasury no less than $75,000; the annual maintenance of all the precocious dements in all our state hospitals in Virginia costs the taxpayers little less than half a million dollars. The loss in productivity in the state on account of the helplessness of these sick folks would surely amount to little less than a million dollars. The average life of a praecox patient in a state hospital is about twelve years. This statement in terms of money means that the State of Virginia spends on each of her citizens that develops this malady no less than twenty-five hundred dollars.

In the United States there are about two hundred and fifty thousand insane people confined

in the various state hospitals. Probably ninety thousand of this number have dementia praecox. The annual cost of caring for this army of insane people cannot be less than twenty-five millions of dollars. The cancer patients—most of them—die; the tuberculous are often saved; pellagra is no longer a scourge; but the praecox patients live on year after year and many of them reach comparative old age. They remain more or less permanent, unsolved, expensive, state problems.

Would you ask me what the affliction means in loss of manhood and of womanhood to the state? Would you ask me what it means in loss of parental hopes; would you inquire of me how the mother feels whose child has gone from her not to return again? Surely you would not! May I ask what medicine, what the state, what our great institutions for the treatment of diseases of the mind are doing to find out what this affection really is? Is there any research bureau in this state grappling with the problem? Will the valley of dry mental bones remain dry, or will some Jenner or Pasteur come and look upon them and breathe into them again the breath of life? Or shall we sit unmoved, effortless and hopeless, and chant with the old Persian poet—

"The moving finger writes and having writ,
Moves on: nor all your piety nor wit
Shall lure it back to cancel half a line,
Nor all your tears wash out a word of it."?

TREATMENT OF APPENDICITIS IN CHILDREN.*

By B. M. BAKER, M. D., Norfolk, Va.

At the February meeting of The Norfolk County Medical Society, I was asked by the Chairman of the Surgical Section to deal with this feature of appendicitis in children, as my part of a symposium.

I must say that I found myself somewhat embarrassed when I realized that I would be expected to find enough to say to keep the attention of my hearers for the allotted time of fifteen minutes. In turning over the matter in my mind, I was sure that some reasonable digressions would be necessary, and I must ask your kind indulgence, now, as I did my audience when I read the paper.

On one occasion, while visiting The Massachusetts General Hospital, in Boston, and, while talking to a friend of mine who is on The Staff (a man occupying an enviable position in the surgical profession of that town), he rather jokingly told me he had been consulted by an anxious mother about her young daughter, and, after a thorough survey and investigation of the case before him, he turned to the mother and said, "I am at a loss to know whether we are dealing with appendicitis or pneumonia. I will take out the appendix, and, if it turns out to be pneumonia, I'll turn over the patient to the Pediatrician to care for." This is rather radical, but it will make a good text.

Some, if not many, of my hearers have heard of stories told about one of the most honored and beloved members of our profession, when he was called upon to see (in consultation) two babies. In both cases appendiceal disease was suspected. In the first case, after an exhaustive effort made to solve the problem, and failing, he refused to operate and left the child, only to have a 'phone message the next morning to the effect that the appendix had ruptured and the child had peritonitis. In the second case when he *did* operate, contrary to his best judgment, because of the local man's insistence, he found a normal appendix. When he 'phoned the following morning, his consulting confrere told him that the child had broken out with measles.

I have little sympathy with the man who can diagnose easily and accurately, in a child, the exact pathology present in a given case of abdominal disease, and less with the one who claims that he can tell the exact stage of an inflammatory process present, at a given time from the symptoms and examination; that is to say, tell definitely what is the exact status of the infection, whether or not it has advanced to the stage of necrosis or abscess, and, if so, that it is or is not localized. I have much more respect for the fellow who is satisfied to differentiate appendicitis from other diseases in the child, notably, pneumonia, the exanthemata, functional digestive disorders, perhaps mastoid disease. A child vomits easily, has fever with everything, always has pain in the middle of the abdomen when sick, the pulse is always fast, blood pressure and blood picture oftentimes unreliable, rigidity of abdominal muscles hard to make out at times, and local point of tenderness uncertain; not to mention the fact that the patient is a child and that the facies does not always tell a true story. If, with some of the above mentioned symptoms present, you can be rather

*Read at a meeting of the Norfolk County Medical Society.

certain of local rigidity with the right thigh flexed, you have, in my mind, rather satisfactory evidence of the presence of appendiceal disease.

But, these things being put aside, for I was not asked to talk about them, and a diagnosis having been skillfully and accurately made, as set forth by my predecessor, I want to say that the way is clear and there is but one way. Apropos of my position in this matter, as my daughter used to say when a child, "Let me tell you a little 'tory about me." Some years ago, I was called to see a negro woman living in an alley, who was propped up in bed and fighting for breath. After investigation, I found that the cause of her fearful condition was the presence of an enormous abdominal tumor, solid and attached to the uterus. At my suggestion, she promptly offered to go to the hospital to be relieved of the offending foreign body. She was promptly taken to the operating room where, with the aid of my dear friend, Doctor Augustine Tucker, (now in China) straddling the operating table, and with the aid of a large double clamp of the ice-tong variety, I was able to raise up the tumor sufficiently to tie off the many attachments to other organs, and remove it with the uterus. The mass weighed twenty-two pounds. She was at once relieved of her embarrassed breathing and made a satisfactory recovery. After she got well, I asked her why she so promptly responded to my request that she go to the hospital for treatment and she replied: "When I axed you whut you gwine do,— Lor' Doctor! You ain' nebber say but *one* thing; you ain' nebber say nothin' but '*take it out*' an', Gawd knows, t'wan't nothin' else fer me ter do. You know Mis' Gordon;" she went on, "she dun sent 'nudder doctor down ter see me. He com in an' look at me an' put his han' on my stomick, an' den he shuck his haide side-wise. Dat's all he dun, and I wuz glad when he wuz gone, caze I did'n' want nothin' ter do with no doctor whut shuck his haide side-wise. How'd you like ter go ter sea in a boat with th' cap'n skert 'fo he lef' de landin'?"

So, gentlemen, I say to you, with your diagnosis made and thinking that your baby has appendicitis, there's but one thing to do; don't shake your head side-wise, but take it out. The baby or child with appendicitis, let it be of the acute, sub-acute or chronic variety, is in danger. Of course, the danger is increased by the acuteness of the condition. Lymphoid tissue being especially abundant in the appendix of the young, the tendency of inflammation to progress rapidly makes this danger, therefore, greater. There should be no waiting for anything. Two hours may mean the difference between a swollen appendix and necrosis.

What I have said might be enlarged upon indefinitely but the story would be the same. One might far better take out a few appendices in children that might well be left, as did my friend in Boston, than to let one baby die from appendiceal peritonitis because symptoms were not those of a perfect picture of the disease. Operate, and that quickly. Do not go to bed and wait until morning. Remove the appendix and drain, as indications require. In draining, drain thoroughly; added to the above treatment, use Fowler's position, and opiates; and stimulate with water, glucose and soda, as indicated.

Partial Histories and Reports of Three Cases in Point Recently Operated On.

First case. — Baby Nancy. Twenty-five months old. Personal and family history, negative. Baby well, except for being rather constipated, when taken suddenly ill with vomiting and slight pain in stomach.

The child was first seen Saturday night, August eleventh, three hours after onset of symptoms, with no definite findings, upon examination. There was no tenderness over the appendix, though child was irritable and restless and resisted abdominal palpation. By diverting the child's attention, deep abdominal palpation was done without evidence of discomfort.

A slight cathartic was ordered and an acetone diet prescribed.

Sunday, August twelfth, the parents reported by 'phone that the child was better after good bowel movements, and that all vomiting had ceased. The patient was not seen again by the Pediatrician until the morning of Monday the thirteenth, when vomiting and pain had returned and the baby was quite ill. A surgeon was at once called in. An operation was done promptly, because of general rigidity and tympany. A ruptured appendix with general peritonitis was found.

Second case.—Lafayette. White. Male. Six years old. Past history and family history, negative.

This child was taken sick on Tuesday, No-

vember 13, 1923. There was slight pain in right lower abdomen and vomiting several times during the next three days. At 7 P. M. on November sixteenth, the pain became more acute and another doctor was asked to see the patient.

Fearing serious trouble, the child was at once hurried to the hospital, where his temperature was found to be 101 degrees and pulse 120. He was suffering from lower abdominal pain; the abdomen seemed slightly tender, but there was no rigidity. The abdomen was so relaxed that one could, definitely, make out a mass in the appendiceal region. Blood examination showed 18,000 white cells and 81 per cent polys.

The abdomen being opened, a tumor was found made up of the ruptured appendix. omentum and mesentery. The abscess had not come through to soil the abdomen, which accounts for the condition mentioned above. The tumor was removed, and, as a safeguard, a cigarette drain was left in the abdomen for three or four days.

Third case.—Frances S. Eight years old. Healthy parents and brothers all living. Past history, whooping cough, measles, mumps and pneumonia.

The child was taken suddenly ill on the afternoon of May twentieth, with pain in right, lower abdomen, constipated, and, added to this vomiting. She was brought to the hospital at 9 o'clock the same night, and a blood picture was made. This showed 17,000 white cells and 73 per cent polys.

I was asked to see the child at 10:30 P. M., and although she had had no opiate of any sort, I found her lying on one side with the right thigh flexed, and sleeping peacefully like a healthy child. With history and picture before me, I thought it best to wake her up, and, finding the abdomen slightly distended and rigid (with thigh flexed, as stated), I deemed it wise to take out the appendix before going to bed. Upon opening the peritoneum, I found a sero-sanguinous exudate. The appendix was very large, very much inflamed, covered with cheesy exudate and distended almost to the point of rupture.

I must say that the story is almost unbelievable; that is to say, waking a child out of healthy sleep to find such a condition.

With proper drainage, this patient made a satisfactory recovery.

303 *West Freemason Street.*

BACKACHES OF KNOWN AND UNKNOWN ORIGIN.*

By C. B. GREEAR, M. D., Honaker, Va.

While men labor and women travail, that long will backaches play an important part in the numerous problems confronting the general practitioner.

This class of patients are learning also to go to the Orthopedic Surgeons, or else call on the Chiropractor and others of his class, largely because the man in general medicine has not given this phase of his work a sufficient amount of study. We are too often negligent of our own interests and grossly careless with the traditions of the greatest pioneers in the practice of medicine.

This going to distant points for medical services which should be rendered at home, if considered from an economic standpoint only, results in losses of marked proportions, not only to the patients, but also to the physicians and their respective communities. Transportation expenses alone, in many instances, would renumerate the physician handsomely, leaving the service fee as a potential loss to all parties mentioned, except gentlemen with an already adipose bank account.

When Mr. Blank goes to a distant city for services, he goes to withdraw from his banker or friends a goodly number of eagles ,and an extra supply of eaglets with which to defray the incidentals, each of which sail rapidly away as if on wings of the morning, never again to return to their native haunts. Mr. Blank frequently returns a wiser, but poorer man, all because his family physician had neglected an adequate amount of painstaking study. Generally speaking, the laity is made up of good sports. They enjoy good shows, and it should not be necessary for them to pay $5.00 per seat in peanut galleries of the cities when equally good performances can be given at home for 50 cents per parquet seat.

Referring to the specialites, I am sometimes caused to wonder if it is laziness or necessity that makes many of us become possessed of a desire to become specialists. We concede the fact that some of the specialties are an actual necessity, while others could and should be dispensed with. The family physician and Dobbin often serve the purpose of a clearing house, without any compensation whatever except the pleasure found in doing gratuitous work.

*Read at the meeting of the Russell County Medical Society, April 10, 1924.

In order to make a logical approach to the subject under consideration, a brief anatomical review is highly important. The pelvis is so called because of its resemblance to a basin. It is made up of four bones, the sacrum, the coccyx and the two innominate bones. The sacrum and innominates have well defined articular surfaces and are held in position by anterior and posterior ligaments, permitting of a limited amount of motion, for which reasons sacro-iliac strains become possible. The coccyx and the symphysis are movable only under unusual conditions and are therefore less subject to trauma and strain. Looking at the pelvic bones with well defined articular surfaces, angles and delicate curves, we are caused to wonder at the marvelous workmanship of an all wise Creator. At points where great strength is required there is an increase in width and breadth and at points where support is necessary there is correspondingly an increase in the angularity.

The spine and sacro-iliac articulations are not unlike those of the shoulder joints in the fact that they are held in place by ligaments and many strong muscle layers, the names of which we once pommeled our brains to remember and have long since forgotten. The shoulder and sacro-iliac joints are dissimilar in the fact that, in addition to being subject to trauma, the sacro-iliac and spinal articulations are subject to hosts of diseased conditions from within the body. When given close study, the wonder is that all of us are not afflicted with one or another form of backache.

Clinically and briefly speaking; Mr. B.—tells us he broke down in his back while lifting a small log, after which he was confined to bed most of the time for six weeks; that ever since then he has had trouble with his back and breaks down once or twice each year when lifting even small loads.

Mr. J.—was holding a log with a cant hook when it ran on him and hurt his back. Since then he has never had a strong back.

Mr. S.—advises us that while catching a sheep running past him, he wrenched his back and had to remain in and out of bed for about three weeks, after which time he limped about with canes and crutches. He has had to be careful about lifting or straining his back ever since.

Any of us could review countless numbers of such histories, had we made notes on them, and the three mentioned would be similar in many of their characteristics. Upon close inquiry we will in a vast majority of these cases find the pain is not centrally located but is on one side, and more often over the sacro-iliac articulations. This would lead us to the conclusion that many of these so-called backaches are not of the back at all, but are strictly sacro-iliac in their origin. In a comparative study of the spinal and the sacro-iliac articulations, we will readily conclude, the latter is much weaker of the two articulations and therefore is much more subject to trauma and strains than the former. The spine has great fortifications of muscle posterior to it, in addition to the anterior and posterior spinal ligaments, making it a master column of giant strength. The same is not true of the sacro-iliac articulation; the ligaments and muscular attachments are in large measure at right angles to each other, with some slight variations to perhaps 45 degrees. This, we readily observe makes the sacro-iliac joint more subject to luxations and strains. True, the sacrum is wedge shape, the tip of the wedge being that of the articular surfaces and thus adds much to the strength of the articulation; yet with heavy weights being lifted with the upper extremities, sudden twists, etc., it is a wonder, as previously stated, that we do not all have more so-called backaches which are in reality sacro-iliac strains.

Frequency of Backaches

Because of the anatomical and physiological characteristics of woman, she is more subject to backache from internal conditions, speaking in general terms. With men the opposite is more generally true, the majority of their backaches being due to external causes.

The great frequency of backaches in women is proverbial with every practitioner of medicine. The pain varies from very mild to the most intense in character; when of the latter type women are completely incapacitated for their usual vocations.

Causes of Backache

These should be divided into two general classes: External, to include trauma of every type; Internal, to include all those having their origin within the body.

For a more intensive study of backaches peculiar to women, the etiology should be further divided into groups about as follows: Those of men to be included in groups 2 and 3 only.

Group No. 1. This should consist of all those associated with a complicated and an uncomplicated pregnancy.

Group No. 2. This should include lumbago, sacro-iliac and spinal strain, neurasthenia, trauma, acute infectious diseases, cerebral, thoracic, abdominal, pelvic, genito-urinary diseases, etc.

Group No. 3. This should include all of idiopathic origin; and there are not a few of them.

In commenting on the groups, will say with reference to pregnancy of group No. 1; there is always a marked physiological relaxation of the entire body. This relaxation along with the rapid increase of the weight of a growing foetus, predisposes the woman to a proportionate increase in the severity of the backaches and with some, the relaxed state is much greater than with others, thus accounting for the fact that some women suffer with the back more than others while in a pregnant state. The centers of the reflexes controlling the sexual organs, the act of defecation, urination, all being located in the lumbar portion of the spinal cord, add much to the irritability of the entire sacral region, thereby much augmenting the pains the pregnant woman must endure.

With the menstrual group, the physiological relaxation is not so marked and it varies with different women. Reflex irritations are very prominent symptoms of these patients, making drug and alcoholic addicts of some where these remedies are promiscuously administered. Others become chronic neurasthenics of one type or another. The predisposition to neurasthenic conditions appears in about the same ratio as that of the general health status; however there are exceptions to all rules. Often young healthy appearing girls writhe in the agony of menstrual pains, wondering why a just God permits them to suffer in such an unspeakable manner.

In group No. 3 of idiopathic origin the backaches often play a prominent part. Most of the back pains are reflex in character and result from the presence of toxic substances in the blood current. The toxic agents add materially to the irritation produced by the highly developed reflex centers located, in the cauda equina and the sacral plexus.

With the idiopathic group, there is much for the pioneers in pathology to explore. Numerous backaches have no visible etiology and it is to this class of patients we owe special consideration in our attempts to reach a diagnosis.

Treatment

This must all depend on the specific etiology in each patient. The numerous pathologic conditions productive of backaches make the question of treatment depend on the respective diseased processes resulting in the backache. Without attempting to suggest a type of polypharmacy best suited to either type of backache, the thing I would like to emphasize is the very great importance of locating a definite etiologic factor underlying the separate and individual backaches, after which the most appropriate course of treatment can be prescribed.

Prognosis

Much of this will depend on the skill, or lack of it, on the part of the physician in charge, in having located, or not located, the cause of the condition.

A conversation between Jiggs and his physician is suggestive:

"Dr.—I just dropped in to see how you are feeling this morning.

"Jiggs—I am not feeling well enough to pay you. I can tell you that.

"Dr.—Well, I expect you to pay your bill.

"Jiggs—Yes, and I expected you to cure me—but look at me—I am about five minutes ahead of the undertaker.

"Dr.—But my good man—you didn't take my advice.

"Jiggs—I'll admit that and therefore I don't owe you any thing." The doctor fainted, of course.

The physician not guilty of careless diagnostic methods shall be allowed to cast the first stone.

THE TREATMENT OF PYELITIS.*

By ROBERT C. BRYAN, M. D., F. A. C. S., Richmond, Va.

In the consideration of the treatment of pyelitis it may not be inadvisable to take up hurriedly the anatomy of the parts entering into the question. The ureter, a mucous tube of about sixteen inches in length, in its excursion downward, is tangent to or slightly external to the transverse process of the lumbar vertebra; it then crosses over the pelvic brim at the sacro-iliac junction and, sweeping somewhat outward to gain about an inch of the spine of the ischium, curves symmetrically inward to the floor of the bladder. When we recall that the ureter and kidney arise as a tubular diverti-

*Read at the meeting of the Walter Reed Medical Society in Newport News, Va., May 14 and 15, 1924.

culum from the Wolffian duct, and that in its development it must rise over the brim of the pelvis to seek its ultimate bed, we can appreciate the possible pathology which may arise in congenital kinks, twists or extraperitoneal adhesions which would ultimately have an influence upon its normality. The pelvis of the kidney, holding normally about 7 c.c., has the point of outlet a little below its center so that there may be, through gravitation, an accumulation in the lower calyces; although the muscular wall of the ureter extending upwardly and continuously with the rim of the pelvis of the kidney tends to empty this cavity by its rhythmic milking contractions which are constantly going on in health. Conditions primarily favoring retention are a restriction of the normal caliber, or a stenosis of the ureter, arising from well defined causes, either from within or without the tube, and again this state of affairs may be congenital or acquired. Congenital anomalies would be evidenced particularly in (1) congenital stricture of the ureter, so ably discussed by Hunner, and in (2) aberrant arteries to the kidney which are found in quite a percentage of all cases, this latter condition acting as an arm or barrier constricting the pelvic rhythm, and angulating the ureter so that there is a mechanical congestion and failure of correct drainage. Some other factors that may be mentioned are general visceroptosis, nephroptosis, salpingitis, carcinoma of the cervix and uterus, tumors of the ovary, peritonitis and extraperitoneal glands pressing upon and embarrassing the normal peristalsis of the ureter. We cannot in the discussion of the condition of pyelitis take into consideration all the various anatomical structures and histology of the kidney proper. This would require a too exhaustive presentation but it has been well shown that the circulation of the pelvis is in direct communication with that of the parenchyma of the kidney so that a disease of one of these organs may be very easily transmitted to the other. It is well known likewise that in all infectious diseases such as pneumonia, typhoid fever, scarlet fever, flu and septic states, the kidney is the gateway through which myriads of germs are constantly finding the outer world, and the highly organized caudate epithelial lining of the pelvis resists infection in a wonderful way, so that in cases of long illness there may be no appreciable damage to this organ. As an instance of this, bacillus typhosus is found during convalescence in the urine of from 20 to 30 per cent of patients with typhoid fever, and its presence causes little more than a bacteriuria.

The etiology of pyelitis could be discussed at length. Arising usually out of a clear sky it strikes vigorously and savagely. An intimate study of the history may give no clue, no tonsillitis, furunculosis or suppurating wound, no unusual exposure, cold or fatigue. Probably a slight constipation and headache for a day or so precedes the very high fever and prostration which is seen regularly in the earlier stages of the acute process. The patient has no local pain, although later the frequency of urination (nature's effort to rid the body of irritating products) may be the one and only disagreeable symptom. We do not believe this is due to a cystitis, as the bladder is most resistant. It may be that deep pressure in the costovertebral angle gives some slight pain. The leucocyte count at this time is high, and the polynuclear relatively high, remaining so for several days. Just now we like to use colonic irrigation along with the hypodermoclysis, as 90 per cent of these cases of pyelitis are due to the colon bacillus and its hasty removal would certainly be indicated. Although almost any type of bacteria may be found producing pyelitis, according to Daniel, the most frequent are the staphylococcus, streptococcus, diphtheria, pneumococcus and influenza. If the mechanical state of congestion, stagnation, improper or insufficient drainage is now added to this bacterial contamination, that condition known as pyelitis arises with its insidious manifestations. During the throes of the acute inflammatory process there is a progressive pathology of cellular cloudy swelling, edema, and restriction of the ureteral caliber, so that indeed a vicious circle seems to have been established; the more the irritant, the greater the response; the greater the response the more the congestion and failure of elimination. One does not have to look far afield to appreciate the origin of pyelonephrosis, suppurative nephritis, the pyemic kidney, or even that rather rare state known as the solitary carbuncle of the kidney arising from a moderate pyelitis which may have been experienced some time previously.

As an indication of the influence of constant pressure on the ureter, the pyelitis of pregnancy is one of the most distressing phenomena that arises. We do not care to state categorically whether this state of affairs is produced

by actual pressure upon the ureter or whether the pelvic fullness so angulates the ureter that there is a passive edema spelling congestion and retention, but there is a remarkable adjustment and compensation to the rapidly enlarging uterus throughout the early months of pregnancy by an increased peristalsis of the ureter, and it is only at that time, when the congestion and uterine enlargement become so great that stagnation occurs and infection shows itself, that the condition of pyelitis is established, and associated with this, doubtless, a low grade ureteritis is constantly found. The ureter is uniformly enlarged, its lumen considerably increased, the mucosa thickened and heavy, with considerable mucus and debris. Fluoroscopic investigation or ureterograms at this time with the use of sodium iodide or bromide shows great distention of this tube above the point of constriction, which is uniformly at or above the pelvic brim, and there is usually a sharp angulation or kink of the ureter at the pelvo-ureteral juncture which is caused by renal dislodgment and further aggravates the condition. The consequent distention of the pelvis and flattening of the calyces by pyelogram emphasizes that there must be a well defined renal insufficiency going on, as has been shown in progressive types of hydronephrosis by Hinman, of San Francisco, in which the arteriae rectae are attenuated and thinned out, the blood supply diminished, and the by-products of metabolism retained in progressively increasing amount. It is surprising the enormous distention that the pelvis may assume, 100, 150 to 200 c.c., a gradual compensating dilatation adjusting itself in a most beautiful mechanical way to the gradually increasing distal resistance. But it is only a question of time before this stagnation spells infection. The hydronephrosis goes on for months unrecognized and untreated. With the onset of chills, fever, pain and urinary findings the diagnosis is clear. Catheterization clears up the septic state almost immediately; the flow through the catheter is under heavy pressure. The usual flow in draining a normal pelvis is somewhat like this, 2 stop, 4 stop, 7 stop, 1 stop. With marked renal glaucoma we have seen as high as 90 drops following in rapid succession before the interruption of the flow occurred. The urine looks cloudy and flocculent; there is evident pathology. What is the significance of this? Its definite association with eclampsia is a pretty question, for I believe there are two varieties, the hepatic and renal; the hepatic type characterized by necrosis of the lobules and profound toxaemia, the renal by evident kidney insufficiency, edema, retinitis and high urea retention. In either event drainage, permanent drainage, prolonged drainage is in order. Whether the clinical evidences are along the side of pyelitis, with temperature, frequency of urination, cellular elements in the urine, distress over the kidney, or the pathology of back pressure on the kidney substance is so great that the by-products of metabolism are dammed back by this renal glaucoma so that the condition of kidney eclampsia is started, would seem to be a personal equation of individual resistance. The writer has had the opportunity to see a fair number of cases of the pyelitis of pregnancy and it is surprising what permanent catheterization of the ureter does. A large catheter must be used, Nos. 9, 10 or 11 French, and left *in situ* 24 to 36 hours. There may be some resistance in the lower part of the ureter in catheterization with so large a tube, but this is readily overcome and with no permanent damage whatever. After its introduction, the catheter may get plugged up with inspissated mucus and has to be watched constantly. Irrigation easily starts up the flow again. The catheter is removed as stated in 24 to 36 hours, the kidney allowed to rest, and it may be reinserted at intervals throughout the following weeks. Nature's cure for this progressive intoxication from renal back pressure is abortion. I wonder how many times it is done by nature to save the patient's life. Copious water drinking, proctoclysis and hypodermoclysis should be pushed to the limit only when the kidney is being drained, for otherwise there would be an aggravation of the pelvic tension. The writer prefers hypodermoclysis as a kidney stimulant and cleanser to any other method of water intake. It is surprising how much the tissues can take up, day after day, under the skin, with only the best effect, no abscesses, pain or other complications. We usually start with the bilateral flow "Y tube" under both breasts, and give 1,000 c.c. the first day, this takes about two hours. We have in certain instances given 600 to 800 c.c. daily for three to four weeks and seen nothing but the happiest results. There is but little if any pain, although the heart, lungs and extremities in older patients must be watched for edema or distress. Apparently, the edema in a male patient starts regularly in the scrotum and we take this to

be a good index of the body tolerance. Considerable attention is paid to the appearance of the tongue and we continue the hypodermoclysis invariably until the dried hard furred organ becomes soft, red and moist as a "hound's tongue." We use saline solution or plain water. Glucose solution is not taken up painlessly under the skin and in acidosis the sodium bicarbonate and milk sugar treatment are better given in the rectum, the hypodermoclysis being directed particularly for renal stimulation. If the water is well tolerated by mouth, six to nine quarts should be taken in the twenty-four hours; one tumbler every thirty minutes will figure up to about seven quarts daily. The patient may rebel somewhat at first, soon they become accustomed to it, and later beg for their plain, unmedicated spigot water. Urinalyses frequently taken show a progressive disappearance of the pus, from 250 to 500 white blood cells to the high power field, they rapidly diminish to 20 to 30, a natural and predicted result from pelvic flushing religiously and relentlessly carried out. It may be at this time some urinary antiseptic may be given. The writer prefers helmitol. It is claimed to be twice as strong and less irritating than the other formalin liberators and, like urotropin, formin, cystogen, etc., should be given only in an acid urine.

Right here the question of right-sided pyelitis may be discussed, for an overwhelming per cent of all cases are seen on the right side. We recall the anatomical relationship of the transverse colon to the lower anterior pole of the right kidney. Transmural bacillary infection by blood or lymphatic routes is not improbable particularly when there is a ballooning of the pelves, an abnormal distention and retention which is the moving factor in hydronephrosis. Again the dislodgment of the right kidney downward, angulation of the renal vessels, slowing of the blood current, all tend to further augment the congestion and stasis which predispose to infection. What percentage of these cases of marked renal stasis are the hotbeds in after life for stone formation? Why is it that stones occur in greater frequency on the right side and in multipara? We believe that some of these etiological factors are answered above by the normal anatomical relationships of the structures. Turning the patient in bed so as to take the pressure off the affected side, restricted diet and saline catharsis, with repeated and gentle irrigations of the pelvis, using a mild solution which is designed to have more effect as a purifier and cleanser than upon its antiseptic properties is in order. We prefer boric acid, saline, sterile water or very weak permanganate of potash. In the very chronic long standing cases we use stronger solutions such as $Ag\ NO_3$, argyrol and the various silver preparations, with mercurochrome 220, 1-1000. In more marked cases in which the kidney substance is being involved and there is a septic state, as would be shown by the phthalein test, increased urea retention and urinary cellular elements, abortion may have to be considered, as we do not believe ureterostomy or nephrectomy are justifiable except under the rarest conditions.

A strict analogy of this pressure state is seen in prostatic hypertrophy in old men in whom for many years the kidney pelves and ureters have well compensated. There is a gradual flattening of the calyces and the usual attenuation of the arcuate arteries. Not infrequently following suprapubic operation or even immediate catheterization to relieve acute retention, there is a distressing and immediate coma arising, in which the condition is directly traceable to a suffusion of the kidney from a sudden release of back pressure. This may terminate fatally. Graduation of the bladder release, a slow adjustment of the renal pressure to the new state of affairs, is to be carried out scientifically and with considerable deliberation. What an extremely interesting balance and counterbalance exists between the renal blood pressure and distal obstruction. The old man brought in with acute retention has been having urinary insufficiency for years, the balance and associated renal pressure is so accurately adjusted that the higher faculties are in perfect co-ordination, and yet with the relief of this surgical state as we stated above, uraemia is abruptly instituted and a fight is on to save the patient's life.

It may be pardonable to digress for a moment to bring up the question of what is called idiopathic hematuria. It would be interesting and instructive to get accurate figures as to how many of these cases had formerly experienced a pyelitis, which left scars as a pyelitis granulosa in which the lymphoid tissue became considerably injected here and there, and in later years underwent a fibrosis which produced varicosities in the pelvis, which burst on some occasion showing itself as a hematuria. We recall several cases who applied for treatment. Pyelogram, urinalysis and Wassermann were

negative. The origin of the blood was located by catheterization. Irrigation with adrenalin on one or two occasions was attended with a very happy outcome.

Just here we would call your attention to the appearance of the ureteral ora in cases of pyelitis. It must be recalled that the visible ureteral mucosa is that of the bladder, no two ureteral ora are any more exactly alike than any two faces; indeed they seem to possess special characteristics and a distinct individuality. Situated at or near the interureteral bar as slits, dimples, streaks, holes, pockets, protrusions or eminences, their absolute normality may be so pronounced that they can be recognized only when they open up to expel the urine. Under such conditions we unhesitatingly pronounce them normal, absolutely normal, and feel well assured that no purulent process above can be pouring its irritating products downward, constantly bathing the mucosa, with no ill effects whatever on the vesical mucosa. It must be borne in mind, however, that an old pus kidney in which the purulent matter is so heavy and tenacious that the lower segment of the ureter is plugged, may give an ureteral os with practically a normal appearance. The significant factors in these cases are the stellate strutting mucosal vessels seen radiating out from the ureteral os, the zone starting a few mm. from the actual crater. The crater is whitish, anemic or indeed a little puffy from the irritation of the retained products in the ureter which stimulate the muscle of Bell and the vesical segment of the ureter into a moderate degree of tonic spasm. By cystoscopic examination then the character of the ureteral os determines immediately the affected side in pyelitis for, although we may have made the diagnosis of pyelitis from the temperature, the urinalysis, the frequent urination and distress, in most instances, no clue whatever is given by the patient as to which side is involved. If one mouth is involved, and is reddish, pouting, with the inflammatory zone radiating from the ureteral crater, this is the side to be treated, and the other side presenting no such picture is to be emphatically left alone. There can be no justification for sending a catheter through an infected medium into a struggling resisting field which gives no clinical evidence of contamination. We recall many various characteristics of pyelitis of the usual type, the type unattended by pregnancy. The act of catheterization produces no actual pain but may be uncomfortable (we never use a general anesthetic and only in the rarest instances cocaine or novocaine), and the flow may be tardy due to inspissation and cellular agglutination. The larger the catheter, the easier the drainage; the urine may come away freely, highly charged with cellular elements, or barely discolored with the products of desquamation. If the bladder has been thoroughly washed, an ureteral catheter lying alongside of the cystoscope and draining the bladder represents the opposite kidney so that the two urines may be pretty accurately contrasted. This is an easy procedure in the female in whom by far the larger number of cases of pyelitis occur. Again, the purulent material may be so heavy and cheesy, it will scarcely drain through the catheter, a further instance of the need of a large tube. Repeated and careful injections finally break this up so it begins to drain away more readily. Just at this time, with the ureteral catheter *in situ*, an X-ray should be taken. It shows the position of the kidney, its size, the presence or absence of stone, and the course and position of the catheter, all of which may bear pretty significantly on the prognosis. We do not believe that a pyelogram is indicated at this time, and just right here we wish to emphasize flat-footedly and in no unmistakable terms that catheterization and irrigation of the kidney should be done only in the most chronic cases which have stubbornly resisted hypodermoclysis, proctoclysis and water drinking.

The treatment of pyelitis of children seems to be found overwhelmingly in females.—Goppert states 89 per cent. It is a pretty piece of scientific technique to catheterize the ureters in an infant or in a 4 to 6 year old girl with a miniature cystoscope and a 2 or 3 French ureteral catheter, and it is as unjustifiable and brutal as it is interesting. Rest in bed, liquid diet, colonic irrigations, and small doses of urinary antiseptics should be thoroughly tried out. The course is usually short, 7 to 10 days. Frequent urinalyses show the progress of the disease and a happy outcome can be confidently expected.

The treatment of pyelitis in adults follows the usual methods, but there is one very important feature in the treatment of all forms of pyelitis which we have intentionally reserved till this period in our discussion that it may be strongly emphasized, unhesitatingly recommended, and used in all types of the disease,

namely "*changing the reaction of the urine.*" If the urine has been alkaline, immediately start making it acid; this may take several days. As soon as it becomes distinctly and strongly acid, commence rendering it alkaline; this again takes several days. During the time it is acid, give the urinary antiseptics and continue them up to the time that the urine shows a beginning alkalinity and then stop, giving no medicine of an antiseptic character while the urine is alkaline. This changing of the reaction of the urine may be kept up several weeks and is to be particularly recommended in the very long standing chronic cases. Apparently the bacteria do not like this abrupt conversion of their media and get mad at the changing of their normal habitat. It may be further that there is a very happy response of the mucosa to this treatment, characterized by a shedding off, which bears with the desquamation innumerable bacteria. It has been our good fortune, by this acid-alkaline treatment, to witness some brilliant results in long standing cases which had apparently resisted our usual methods.

The one remaining and distressing type of pyelitis to be considered is that of the tabetic. Porges and Necker, Nathan and Reinecke treat these cases only by 606 intravenously. Is it that this powerful drug possesses some selective affinity for the renal lining? Young, of Baltimore, has brought out in a monograph the use of mercurochrome for pyemic states, and it may be that the future shall decide that the treatment of all infectious processes shall be by antiseptics delivered into the blood stream. We have not used any hematogenous methods, nor have we had developed autogenous vaccines for the treatment of pyelitis.

In the discussion of the treatment of pyelitis we have intentionally avoided the consideration of pyelitis produced by (1) stone, (2) hydronephrosis and (3) stricture of the ureter. All of these are essentially surgical states demanding care of the actual mechanical pathology before we can hope to treat the pyelitis with any success. Each could be discussed at length, therefore we have only mentioned the subject to abandon it, as it is too comprehensive for consideration at this time.

In conclusion, we would tersely summarize the treatment of pyelitis by the one word, *water*,—water by mouth, by rectum and under the skin, using the cystoscope only in the chronic cases when the microscope and clinical findings show that there is not a satisfactory and progressive change for the better. For we believe that the indiscriminate use of the cystoscope probably produces more trauma and ill effects during the acute and sub-acute stages than good as a result of lavage of the renal pelvis. In all cases of pyelitis we earnestly recommend the change of the reaction of the urine as has been discussed above.

ULTRA-VIOLET LIGHT.

Its Place In Space and Therapeutics.*

By FRANK HANCOCK, M. D., Norfolk, Va.

I realize that in introducing this subject I am entering the sanctuary, violating the solemnities. The profession has always looked wistfully toward the old and accustomed. A certain regressiveness has characterized it, a homesickness, almost, for what has been.

We have the accumulations of a vast tradition of inert customs and conformities. They are going. One by one the superstitions fall. Manipulation, light, electrical means of treatment have hitherto been upon the index, but are now made respectable under the name of physiotherapy, and so I am able to present a new subject to an orthodox audience in an orthodox way; something I couldn't have done a few years ago: thus demonstrating that what was un-moral yesterday is worthy today, and maybe tomorrow forgotten.

Again and again researchers throughout the world have shown the value of U-V light in therapeutics, as are fresh air, sleep and recreation.

Ultra-Violet Ray in Space

It lies just beyond the violet of the visible spectrum. It is as invisible as the X-ray. To get at some definite standard for comparison, as in other fields, an arbitrary unit of measurement has been adopted. This unit is the measurement of the length of a light wave—visible and invisible—and has been named the Augstrom unit. This unit is one ten millionth of a millimeter in length, or one ten millionth of the thickness of a worn dime.

Science has no difficulty in measuring this, even small fractions of it. The Gamma rays of radium are the shortest rays known—from 2 to 7 hundredths of one Augstrom unit. Then come the harder X-rays, with a wave length of from 1 to 8 or 10 A. U.

Then we have a section of the invisible ray field, uncharted until we reach the beginning

*Read at a meeting of the Norfolk County Medical Society.

of the extreme ultra-violet field. Until quite recently this uncharted field extended to about 900 A. U., but Millikan has now pushed the limit to about 360 A. U. The extreme ultra-violet field extends then from the shortest U. V. yet measured (360 A. U.) down to a little beyond the limit of quartz transmission. Quartz transmits from 2,000 to 4,000,—after that comes the visible ray spectrum ranging from violet on the shorter wave length end to the red—the longest of the visible rays; and then the infra-red (invisible), and the heat rays, down to the Hertsian waves,—from a few c. m. to hundreds and thousands of meters in length along which travel the wireless and the radio messages.

The U-V generating apparatus has gone through about the same evolutionary stages as the X-ray. At first there was the interrupter type X-rac outfit with its very limited capacity, noise, gases, and uncertain interrupter;—and then the modern interrupter-less transformer and Coolidge tube appurtenances.

The first U-V light arc lamps were cumbersome and dangerous and gave small quantities of the actinic ray of the longer wave lengths. Tungsten was used a good deal at first, but it was too expensive. fragile and uncertain.

Then came the Cooper-Hewett mercury vapor tubes, but the glass absorbed all but the longest wave lengths. This was succeeded by the Quartz Mercury Arc, a great improvement upon all previous attempts to transmit U-V light to the human body. Glass could not be used even if it transmitted the shorter wave lengths as it would melt and fuse at the temperature reached in the quartz mercury arc. This latter, too, will be improved.

Two Types of Lamps

The diffuse lamp for general raying and the focussed lamp for intensified raying through water-cooled condensing lenses.

Bayliss, Clark, and others have definitely proven that the shorter wave lengths of U-V are more soluble in protoplasm, more bactericidal, and produce a leucocytosis. Clinical experience confirms these observations. The U-V ray proceeding from these lamps is greatly in excess of anything of the sort to be found in sun light. The amount there is very variable, depending upon moisture, dust, smoke, and other impurities. In English cities 50 per cent of sunlight is obscured by smoke; in Pittsburg 40 per cent. In five large American cities the soot fall is from 300 to 1,300 tons per square mile per year. Cities eventually will purify the air as they have water.

So quartz light can be given in larger doses than sunlight, and at any time. Bactericidal action of light is confined to the U-V region of the spectrum, beginning where the violet fades into the U-V, and continuing in intensity to the shortest wave lengths measured with the quartz spectrograph.

U-V irradiation may replace chemical antiseptics. Donnelly reports 40 cases of diphtheria carriers sterilized by direct application of these rays to the nose and throat. Fifty per cent were sterilized after one application. In the *American Journal of Clinical Medicine*, (January, 1924), Denman, Laryngologist of Chicago, points out the inadequacy of tonsillectomy in many cases of tonsillar infection, because the lingual branches of the lymphoid tissue retained pus and bacteria, and he had not known how to deal with these lingual branches with their intricate ramifications.

This was the problem;—the following is the solution:

Modern ingenuity having given us the mercury vapor lamp by which U-V rays are artificially generated in a vacuum quartz tube, nearly all such rays being of the short wave length,—these being of most value—they can be used in full therapeutic quantities; without the production of heat—the lens itself remaining cold throughout the exposure. Thus is brought to bear the strong bactericidal action of these focussed rays upon the throat, bringing about a cure, or an amelioration. This laryngologist often applies these rays following a tonsillectomy, with such gratifying results that he was induced to consider how he might further amplify this form of treatment in tonsillar and pharyngeal troubles.

U-V rays have physical limitations. They do not penetrate more than 3 or 4 m. m. Therefore they cannot of themselves sterilize the tonsil, its crypts and depths.

Wetherbee, of New York, demonstrated beyond a doubt that exposure to the X-ray caused absorption of the lymphoid tissue, faucial and lingual, and a shrinkage of the entire tonsil, verifying this in a series of experiments.

Denman considered a combination of the two for the disposal of the tonsil—sterilizing with the U-V ray, and shrinking with the X-ray. A few trials taught him that there was no antagonism between these two energies,

placed, as they are, side by side in space,—but rather that they were in symbiosis, were physiologically complementary. He uses the condensed water cooled lamp for sterilizing, and the Alpine lamp with its diffused rays to promote metabolic reaction against infection. The effects were dramatic in many cases. The X-ray destroys the embryonic lymphoblast root cells to which the prolonged growth of the lymphoid tissue is due. The follicles shrink, the crypts become shallow, their apertures widen, and eventually obliteration ensues with mere depressions left over the surface of the tonsil, now a fibrous nodule, devoid of lymph, clear of infection. Will we sometime throw away our dissectors and snares?

Theoretically the U-V ray is the method of choice in all bacterial diseases of the skin. In premature alopecia from seborrhoea it has a favorable influence. In a chronic sluggish ulceration caused by trauma, where epithelium refuses to grow, it stimulates, kills the infecting organism, cleanses by reabsorption, and induces rapid healing.

An illustration: A boy of 12 years of age had a traumatic dermatitis. Eight years before there had been an osteomyelitis, left leg, for which several operations were done through the years, the wound healing intermittently. There were finally seven months of uninterrupted health, when he sustained a bruise on the previously injured parts. A sore resulted over the old scar tissue; and then another, and another, until it seemed that all the scar tissue would become involved. X-ray showed the previously diseased bone to be healthy. His general health was good. Various treatments, antiseptics, supportives were tried without avail. Irradiation with the Kromayer lamp induced a marked change in a few days, and in four weeks all ulcers were healed.

An American soldier in Russia sustained a compound comminuted fracture of the right thigh, the sciatic nerve being severed at the same time. He was carried thirty miles in a sleigh, and then a Thomas splint applied. In the succeeding twenty-two months he was operated upon five times, severe infection having set in. Ten months of manipulation and massage followed. Then a trophic ulcer developed on the heel. It lasted fourteen months and healed temporarily. In November, 1920, it broke down again, covering a wide area over heel and posterior surfaces. In July, 1921, U-V and radio-vitant lamp treament was begun. Immediate signs of improvement were seen over this area, but then a general furunculosis set in,—arms, axilla, back, etc. Some of these were opened and rayed; others aborted when seen before suppuration. Under general raying the patient's body resistance was raised; the furunculosis disappeared; the large ulcer cleared sufficiently to apply skin grafts; and the soldier was discharged.

A girl of eighteen had a suppurating skin affection of the neck which had proved rebellious to all forms of treatment, including a long stay at a summer resort, with daily exposures to the sun's rays. Four treatments with the Kromayer lamp brought about a complete cure. Rosero, of Naples, reports favorable experience in twenty-two cases of chronic ulcerations, or torpid wounds. In the *Archives of Dermatology and Syphilology* five cases of erythema induratum are reported as having been successfully treated.

In the *American Review of Tuberculosis*, Mayer, of Saranac Lake, writes of the successful treatment of tubercular laryngitis. In a case of tubercular glands of the neck referred to me by Dr. Doughtie, eight to ten pressure applications of the Kromayer lamp resulted in complete healing. Recently I have treated two cases of chronic varicose leg ulcers, one of which had been very resistant to other forms of treatment. They responded readily to the condensed focussed rays of the Kromayer. Neither of them have recurred. Oliver of Boston reported twenty-five such cases permamentlly healed.

Dermatologists generally speak discouragingly of the treatment of acne with this ray. Early last summer I saw a man with an acne eruption over the back from neck to buttocks behind, and pubes in front. Some were papular, some pustular, some had healed—leaving the characteristic little depressed eschars. He was very uncomfortable and much run down. Besmeared with ointments from time to time without improvement, he had finally abandoned treatment. He was given a general irradiation twice weekly. A few pustules were opened. He immediately reacted. It was necessary to bring on a real erythema; some blistering followed. After eight treatments all evidence of acne had disappeared; the patient ate heartily, gained in weight, and has remained well since—these last six months.

Carbuncular affections respond quickly to this mode of treatment. Care must be exer-

cised however, as diabetes is sometimes associated with carbuncles. U-V ray induces a superoxidation, which is a part of the metabolic fault in diabetes. Dr. Andrews will recall a case of his in which a large area of the lumbar region was involved: around the crater of this carbuncle was a corona of small abscesses, all stewing with pus. There was an immediate response to a general raying with the Alpine lamp. Several succeeding small abscesses were aborted with the Kromayer. It is true a vaccine was used to prevent a return, but only after this particular carbuncle was definitely subsiding.

So much for the bactericidal power of the U-V ray. The more important U-V rays, the shorter rays, in the far ultra-violet region that affects cells, toxins, bacteria ferments, are present in the mercury quartz vapor, but absent in the sunlight as it reaches us. It has been recently shown in the *International Medical Digest* that tumors of rapid growth contain large amounts of potassium, but very little calcium. Tumors of slow growth contain considerable calcium, but very little potassium. As calcium increases in the blood, the growth of tumors decreases. Cancerous cachexia presents a rapid elimination of calcium. The blood of cancer patients has less calcium than normal blood, resulting in an osteoporosis (porousness of the bone), and a deposition of mineral salts in the epithelium of the kidney. Calcium inhibits the virulence of cancer and its tendency to metastasis. It is therefore desirable, indeed necessary, to maintain a high calcium content in the blood in the treatment of malignant growths. This may be accomplished by the use of biologic or air cooled U-V rays. How calcium does this we do not know. May be through the parathyroid, which have to do with calcium metabolism—but that does not interfere with the clinical usage of the energy. Malignant tumors are accompanied by secondary anemia, due to cachexia and to a decrease of the cellular and chemical blood element. U-V light increases the cell and hemoglobin content of the blood in secondary anemia. This is not due to increase in iron metabolism, but to a general systematic stimulation, including a leucocytosis and a lymphocytosis. Hypertrophic rhinitis, hay fever, and asthma are characterized by a calcium deficiency. Investigations are proceeding with reference to the use of U-V with considerable promise of success.

U-V light influences general metabolism by changing the quantity of expired carbon dioxide, altering the rate and depth of respiration, and increasing the rate of growth in light as compared with the rate of growth in the dark. It accelerates all metabolic processes which, in cancer and cachexia of any origin, are suppressed by the toxic influence of the invasion. Its power to increase the calcium content of the blood has been shown again and again in the treatment of rickets, where the essential blood changes are a formidable decrease of calcium and inorganic phosphates. During the starvation period in Austria, 1919, this ray was repeatedly used; in fact it seemed more available than food until the American Relief arrived with car loads of cod liver oil.

Apes—orangs, I believe—were exposed to massive doses of X-ray by researchers for the deliberate purpose of producing a leucopenia. A number of these apes were then given injections of polio filtrates and tuberculous germs. They developed the respective diseases promptly. The rest of the apes were rayed with U-V light until a pronounced leucocytosis developed. The same injections were given. There was scarcely any response, and in some cases none at all.

U-V Ray in Space and Therapeutics

An induced lymphocytosis, then, increases animal immunity, a desirable result in any reparative process in chronic disease.

Concerning port wine discoloration, I desire to say that in one case treated recently, the results have been altogether satisfactory.

A young lady, otherwise unusually good looking, has had from birth this very marked coloring of the entire lower lip and chin. The treatment was tedious, but the discoloration has entirely disappeared.

Taylor Building.

ETIOLOGY AND TREATMENT OF SQUINT: RESULTS OF SOME OPERATIVE CASES.

By CHAS. A. YOUNG, M. D., Roanoke, Virginia.

My purpose in bringing this subject before you is to urge early treatment of squint, not only on account of disfigurement, but for the more important consideration of preserving vision in the squinting eye.

The vision in the squinting eye is lost in about 85 per cent of the cases from lack of use and can not be improved unless intelligently treated before the age of six years. Operation after the age of six years will in most cases straighten

the eyes, but will not improve the vision. Non-operative treatment before the age of six years will straighten the eyes in about 60 per cent of the cases and will preserve vision in both eyes in practically all the cases.

The usual causes of squint are:

1. Errors of refraction is probably the most frequent cause of squint, often termed—accommodative squint. Usually there is high hyperopia and astigmatism. This type often disappears temporarily under anesthesia and under influence of atropine.

2. Lack of Binocular Center, Binocular Faculty, or Binocular Desire is the second most frequent cause of squint. In this condition there seems to be no desire on the part of the brain to see an object with both eyes simultaneously.

3. Paralysis of one or more of the extra-ocular muscles, usually a birth palsy, is an infrequent cause of squint.

4. Poor vision in one or both eyes as the result of central choroiditis, tumors, albinism, etc.

5. Muscle anomalies: muscle either too short or too long, or attached too far forward or too far backward. This condition is very rare.

6. Bandaging eye for some length of time, especially before one year of age.

7. Specific fevers and convulsions while often given as the cause by parents only hasten the appearance of the squint.

Age of Development:

1. Congenital, or developed during first few months of life due to weakness or absence of one or more of the muscles.

2. Convergent squint, ordinarily between first and fourth years of life.

3. Divergent squint usually develops later in childhood and youth as in myopia.

4. Any time in life from a paralysis of one or more of the extra-ocular muscles, cataract in one or both eyes, loss of vision in one or both eyes and from muscular imbalance.

Treatment

Refraction under atropine and the prescribing of full correction.

Training vision in the poorer eye by bandaging or instilling atropine in the good eye, in which case the previously straight eye becomes the squinting eye; after vision is about equal in each eye we must maintain good vision in each eye by frequent examinations.

Training of fusion and binocular vision by the use of the amblyoscope and the stereoscope.

The above measures failing to cure the squint we are compelled to use operative procedures which give excellent cosmetic results.

Case Reports

Case No. 1. Miss M. L., age 12 years, has had convergent squint for past nine years. No improvement after glasses had been worn for past eight years. Examination showed 40 to 45 degress of convergent squint. O. D. squinting eye and O. S. fixing eye. Vision O. D.= 6/15. O. S.=6/5-4. Operation at Lewis-Gale Hospital, July 10, 1923. Ether anesthesia. Worth Advancement external rectus of O. S. Operation Lewis-Gale Hospital. Local anesthesia. July 28, 1923. Worth Advancement external rectus of O. D. August 30, 1923, eyes straight. No diplopia. Refractive error and vision before operaton:

O. D.+2.50 S.=6/15.
O. D.+2.00 S.=6/6.

Refractive error and vision nine months after operation:

O. D.+2.00 S.+25 cyl. ax. 15=6/9.
O. S.+3.00 S. =6/5.

Case No. 2. Miss R. P., age 13 years, has had convergent squint for past nine years. Wearing glasses for past eight years. No improvement of squint. Examination showed 22 degrees of convergent squint. O. D. Squinting eye. O. S. Fixing eye. Operation August 14, 1923, at Lewis-Gale Hospital, local anesthesia, Worth Advancement of external rectus muscle of right eye. August 30th eyes straight. No diplopia.

Refractive error and vision before operation:

O. D.+3.50 S.+50 ax. 180=6/9-2.
O. D.+3.75 S.+50 ax. 180=6/5-2.

Refractive error and vision after operation:

O. D.+3.50+75 ax. 180=6/7.5-1.
O. S.+4.25 Sphere =6/4-2.

Case No. 3. Miss K. H., age 13 years, has had a convergent squint for past twelve years. Examination showed 45 degrees of squint. O. D. is squinting eye. O. S. fixing eye. Operation at St. Charles Hospital, August 9, 1923; local anesthesia; Worth Advancement of external rectus of O. D. Operation at St. Charles Hospital, September 2, 1923; local anesthesia; Worth Advancement external rectus of O. S. November 3, 1923, eyes straight. No diplipia.

Refractive error and vision before operation:

O. D.+1.50 S.=6/18.
O. S.+1.50 S.=6/9.

Refractive error and vision after operation: (3 months after):

O. D.+1.00+50 ax. 135=6/7.5.
O. S.+ 75+75 ax. 105=6/5.

Case No. 4. Miss V. M., age 26 years. Has had convergent squint for past twenty-three years. When four and one-half years of age both eyes here operated upon at Memorial Hospital in Richmond. As the hospital records were burned and Dr. John Davidson, who operated upon the patient, is dead, have not been able to find what type of operation was performed.

When first seen patient had convergent squint of 40 degrees. Both eyes turned in. Neither eye could be turned past mid-line in abduction. Both eyes showed horizontal nystagmus, and globe seemed smaller than normal, particularly cornea. O. S. is fixing eye. O. D. is the squinting eye. Vision without glasses O. D.=3/60. O. S.=3/60. Operation at Lewis-Gale Hospital August 25, 1923; local anesthesia; Worth Advancement of external rectus muscle of right eye. Operation at Lewis-Gale Hospital, September 12, 1923; local anesthesia; Worth Advancement of external rectus muscle of left eye.

At the present time eyes are straight. No diplopia and very little nystagmus.

Refractive error and vision before operation:

O. D.—2.50—2.00 ax. 90—6/30.
O. S.—2.00—2.25 ax. 80—6/30.

No change in refractive error and vision after operation.

Conclusions

1. Every case of squint should be seen by a specialist as soon as squint makes its appearance.

2. Glasses will straighten eyes in about 60 per cent of the cases.

3. Vision will be restored to the poorer eyes whether eyes straightened or not if seen early. Cannot as a rule improve vision after the age of six years.

4. Operation can be performed under local anesthesia in patients over twelve years of age and cosmetic results are excellent.

MacBain Building.

SINUSITIS FROM THE STANDPOINT OF THE GENERAL PRACTITIONER.*

By G. B. TRIBLE, M. D., F. A. C. S., Washington, D. C.

Prior to the anatomical studies of the Viennese school, notably Zuckerkandl, the posterior sinus group was a no-mans-land and the medical dictum was noli-me-tangere. Even the anterior and more accessible were but incompletely studied, and operative procedures were more or less limited to drainage of the antrum of Highmore through a tooth socket. Hajek, taking advantage of Zuckerkandl's work and with the wealth of clinical material at his disposal, attacked the problem from the surgical and curative standpoint, and developed a line of operative approach which in basic principles has withstood the test of time, and with not much modification has developed into the radical but anatomically simple intra-nasal surgery of Sluder, today. Further than that the intra-nasal route to the hypophysis was developed as a result of the comparative safety of sphenoid surgery.

The etiology of sinus infections is modified somewhat by the situation of the ostium; we have the frontal and ethmoids draining downward by gravity, the outlet at the dependent portion, though in the ethmoids, owing to the labyrinthine structure, gravity drainage is not constant. With the antrum and sphenoid the ostia are well above the most dependent portion, and retained secretions are the rule. The antrum is further exposed to a source of infection that does not affect the other sinuses, namely the teeth. Direct penetration of the floor by the roots of one or more teeth is not uncommon, but more often it is an apical abscess, or area of alveolar rarefaction and resorption that permits antrum infection. Drainage from the frontal or ethmoid may be directed into the antrum and we have the anomalous condition of an antrum full of pus, and no antrum disease. Nature endeavors to correct this state of affairs, and provides that the cilia of the epithelial lining keep up a current toward the ostium. The proportion between dental and other sources of antral infection is reported variously, the older investigations giving a higher ratio than the newer; roughly 25 per cent is probably a fair average. The teeth whose roots are in most intimate contact with the antral floor are the second premolar and the first molar. Trauma in extraction will

*Read before the Montgomery County Medical Society, Gaithersburg, Md., October, 1922.

open directly into the antrum, and is often aggravated by the bony condition; interstitial bone changes in the great group termed pyorrhea are very common. Infections of dental origin may not be confined to the antrum. Rapidly ascending infections are found, and in general show their dental origin by the foul odor of the discharges. The most frequent source of sinus infection is through the nose; systemic infections in some exanthemata and pyaemia may occur, but are not usual. The bone changes of syphilis with the obliterating endarteritis, the atrophic changes of atrophic rhinitis, and the surgical atrophy from too great removal of the vascular bodies of the nose, all tend to sinus infections. Repeated colds, of no matter what etiology, structural defects interfering with drainage and ventilation, and above all the recent pandemic of influenza and the accompanying widespread hemolytic streptococcus infection are the most frequent and important factors.

Macroscopic finding of pus is no longer considered a necessary thing without which there can be no sinusitis. We believe an abnormal mucosa, structural alterations in the bone, the presence of polypi or granulations, and above all the microscopic finding of tissue invasion by bacteria, constitute a true sinusitis and demand surgical intervention as much as the presence of free pus, which after all may be the expression of free drainage. Relief of mere stoppage of outlet and amelioration of symptoms from proper ventilation is demanded in the vacuum type of frontal involvement.

The questions of greatest import for the man practicing medicine as distinct from the rhinologist, the man who has to bear in mind all the possible complications and ramifications of the varied types of diseases, and symptoms, which may mean any disease or no disease, are: when should this or that patient be referred to a rhinologist; what means of study of the sinuses will he make use of that can not be provided by the general practitioner; why should a study of the sinuses be made; and what results are likely to accrue from this or that method of treatment or operation.

First, then, let us consider what are the chances of a sinus infection. We know the nose and the nasal accessory cells are more exposed to infection than any other portions of the respiratory tract, because from its prominent position the nose is exposed to all sorts of injuries with the resulting deformities and their interference with function. The infections from the mouth have been mentioned. The post-mortem findings give a good index to the percentage of involvement, though necessarily high because of terminal infections. Skillern quotes Gradenigo as giving positive autopsy findings of 22 per cent, regardless of cause of death in 203 examinations, Harke 34.5 per cent in 146, Oppikofer 47 per cent in 200 cases, while in death from influenza and pneumonia the percentage ran higher. In the great clinic of Chiari, where in pre-war days literally hundreds of all sorts of nose and throat conditions were treated daily, 2 per cent were reported sinus cases, using the old diagnostic technique of free pus, or pus on washings or aspiration, the presence of granulations or polypi, while the microscopic bone changes, hyperplastic ethmoid or sphenoiditis, or tissue invasion by bacteria were not considered. The condition then is widespread and necessarily the clinical manifestations in the living will be varied, depending a great deal upon the anatomical situation of the sinus, although not necessarily so.

The first great symptom of almost universal prevalence at some time or another in nearly every sinusitis is headache. Headache may or may not be definite in its location. Skillern has given certain areas as being relatively characteristic; over the brow indicative of acute maxillary or frontal suppuration; frontal headache from frontal sinusitis of a chronic type; vertex pain from the sphenoid and ethmoid; pain in the occiput from the sphenoid. In this regard, it is interesting to note that with the use of the suction apparatus, and the production of a negative nasal pressure, there is more often a complaint of occipital pain than any other; next is pain above and behind the eye. Since there occurs frequently more than one sinus involved, confusion will occur if localization by means of direct pain is attempted. Sinus headaches in general are distinguished from those of ocular origin, due to refractive errors by their independence of eye use, by their tendency to be worse in the morning and gradually wear off during the day. This characteristic depends upon the drainage being established, or the approaches to the ostia becoming more open by moving about, or assuming the erect position. Eye headaches are frequently frontal and clear up on eye rest, unless, of course, due to some inflammatory condition, such as iritis, irido-

cyclitis, or glaucoma. Change of position, such as bending forward, aggravates a sinusitis. There is one symptom by which an ache over the eye, presumably from the eye, can be worked out, and that is by making pressure over the site of the insertion of the pulley of the superior oblique. This is known as Ewing's sign, and means an inflammation of the frontal sinus and is caused by an involvement of the periosteum at the attachment of the pulley. Absence of nasal symptoms in various types of sinusitis has led Hajek to believe that a large percentage of sinus cases go unrecognized, receiving treatment for neuralgias or headaches. Associated with the neuralgia pains rarely one finds a flushing and dilatation of the veins of the forehead on the side affected during the attacks. Ear symptoms such as tinnitus, persistence of tubal stoppage, suppurative processes of the middle ear and mastoid can be expected if it be considered for a moment how closely situated anatomically all these structures are. Pharyngitis lateralis, kept up by the presence of escaping secretions, inflammation of the pharyngeal bursa, persistent laryngitis with no attributable cause should all prompt an examination of the sinuses. Of general symptoms vague in outline is mental irritability, frequently indicative of an obscure infection.

Skillern gives as causes of headache common to sinus disease, the following: (a) Swelling of the mucosa with nerve pressure; (b) Direct contact of the swollen mucosa; (c) Negative pressure in the sinus; (d) Ulceration of the mucosa with nerve involvement; (e) Absorption of toxins; (f) Disturbance in the blood and lymph circulation at the base of the skull.

Sluder has expressed a rather novel conception of the situation, and explains both headaches and neuralgias as being evidences of peripheral nerve irritation. The oculo-motor, trochlear, abducens, and ophthalmic division of the fifth all pass through the sphenoidal fissure. This is a part of the sphenoid and may be closely associated with the nose, for in some cases cells extend into the greater wing. These nerves are readily seen to be more closely connected with the nose and para-nasal sinuses than the other cranial nerves. In addition, the optic, maxillary and vidian are directly in the sphenoid, a part of the nose. Further complication is caused by Meckel's (spheno-palatine) ganglion, situated in a fossa, practically a para-nasal cell, lying submucously or nearly so, exposed to all the influences befalling the nose and sinuses. By these relationships he explains not only the distinctly localized conditions, but also the neck and shoulder pains he has demonstrated so well to be of sinus origin.

Eye complications are so intimately connected with the nose that the line of demarcation between true eye conditions and those of nasal or para-nasal sinus origin has become very shadowy indeed. When it is considered that the eye with the optic nerve is surrounded on three sides by accessory sinuses, it is easy to see that no escape from involvement is possible, and the wonder is that this matter has so long escaped attention. This overlapping of the fields of rhinology and ophthalmology has its bearing and its import for the man in general medicine, who has possibly carefully and conscientiously gone over the history of the patient, sent him to this or that ophthalmologist, who in turn has made a careful examination from the eye standpoint, refracted him carefully, found but little, or nothing to speak of, on ophthalmoscopic examination. The patient returns to the general man, no better, and either the physician loses faith in specialism, or the patient loses faith in doctors, or both things occur. Rhinology is not a cure-all, but no examination of such a case can be complete without an examination of the nose and accessory sinuses.

It used to be good for a laugh in St. Louis when A. E. Ewing would send his doubtful eye cases to Sluder for thorough nasal examination, but that stopped several years ago, and the importance of the relationship is so well recognized that the combined examination is the accepted routine in many clinics and private offices. As before mentioned, the anatomical relationship of the orbit and its contents, from the ophthalmic fissure to the eyelids, renders it inevitable that a diseased sinus, even with only microscopic changes, will influence the eye, from any of several modes of transmission. The most simple form of transmission is by contiguity, and may be evidenced as an openly inflammatory reaction, from the extension of suppurative or necrotic processes, showing up in the orbit as a cellulitis or orbital abscess. Pressure on the optic nerve in its passage along the side of the sphenoid, or posterior ethmoid cells as a result of inflammatory exudate, disturbance of motility, displacements of the globe, can all result from infec-

tion of a neighboring sinus. Disturbance of the ophthalmic circulation with its attendant train of symptoms can easily be produced by involvement of the posterior cell group. The maxillary sinus from its position is less likely to be an offender, but a rarefying osteitis, or destruction of its roof, the floor of the orbit, with the accompanying ocular disarrangement does occur. Ocular muscle imbalance may be due to inflammatory changes in the periosteum or bone at the ocular muscular attachments, as well as from the absorption of toxins. Of greater import to the opthalmologist are the changes in the visual field, the retrobulbar invasion of the optic nerve in its passage for a good part of its length through the space next to the sphenoid and posterior ethmoid cells, and in some cases in these cells. This relationship has accounted for the terrifying accidents that have occurred from curetting these cells, when as you may remember, unilateral or in one case bilateral blindness promptly ensued.

The neuralgias are hard to separate from the headaches, as the presence of the highly organized and specialized nerves and ganglia are found in no other place in the body in so exposed a position. The ramifications of the branches from the sphenopalatine ganglion account for the neck and shoulder pain experienced and have been considered.

General symptoms other than the ones mentioned have not as yet been fully worked out. Mental irritability and unstability have been thought more or less characteristic, likely due to a neurosis from neglected symptoms. Drainage from the posterior group, which does not escape from the nose, but usually down the sides or back wall of the pharynx, contributes to the stomach specialist's findings of pus in the stomach contents, or may be coughed back and give rise to an unexplained source of pus in the sputum.

The diagnosis can be made by the simple head-light and nasal speculum if there is free pus, after nasal irrigation to clear away any nasal secretion proper, if it is a frank case with established drainage. Without finding such an open and shut arrangement it is a little different, and the aid of all the modern armamentarium of specialism must be called into play. It is particularly important to have a high-power lamp, giving a white light. Without this it is difficult to pick up small glistening beads of pus post-nasally, or to pick them up in the olfactory fissure.

An imported lamp of the arc-light type with heavy carbons is used by Sluder, but the microscope lamp put out by Spencer microscope people proves an acceptable substitute. With such a light the velvety, rather spongy mucous membrane of the hyperplastic type of cases can be recognized. The naso-pharyngoscope is of considerable value, particularly in children where lack of control renders postnasal mirror examinations very difficult.

Irrigation and puncture with irrigation are routine, but with the newer pathology, not so important as they were once considered. Transillumination in the case of the antrum has value, placing the illumination in the orbit as well as the usual method of placing it in the mouth. So far as the other sinuses are concerned its value is questionable. Good radiographs, properly taken, and properly interpreted give us complete knowledge of the sinuses. Criticisms made against X-ray examinations have been based on poor X-ray examinations. Seeing the wonderful plates of Van der Hoeve, of Leyden, where even the mastoid labyrinth was shown, and not only the sinuses, but the entrance of the optic nerve projected on the film, was a lesson in what can be done, if for no other reason than to get the anatomical relationship, to learn whether or not there are anomalies of structure, absence or lack of development of any cell. Schaefer, professor of anatomy at Jefferson, in his work on the para-nasal sinuses, from a developmental standpoint, has gone beyond the pioneers in this field of the Viennese school. Clinically, it is impossible to tell if the trouble is arising from a frontal cell proper, or an orbital-ethmoidal cell, and the frontal of that side may be undeveloped. Any operative procedure not based on that knowledge would be unsuccessful, would be fraught with danger and could easily be fatal. The same applies to the sphenoid to a less degree.

Treatment in general is operative or non-operative, acute conditions non-operative unless alarming symptoms develop in the cells with gravity drainage. Cleansing the nose, steam inhalations, the keeping down congestion and blockage by weak cocaine and adrenalin, the menthol preparations, heat externally, position about 45 degrees from the perpendicular, free catharsis, the use of the coal tar products for alleviation of pain, are measures

used alike by all. With the antrum, drainage by aspiration under the inferior turbinate, lavage of the sinus, introduction of antiseptics, removal of infective agent, if an alveolar abscess, must be done. Aspiration by negative pressure after shrinking the approaches to the natural drainage area often gives great relief. It is impossible to empty an antrum in this manner, and probably a sphenoid for, as before mentioned, the drainage through the natural opening is handicapped by being against gravity.

Evidence of undue severity, or the presence of complicating factors in an acute sinusitis of any type, call for operation, and that quickly. Meningitis and brain-abscess must be ever in the background; the avenues of extension are many and easy of access.

Operative procedure may be limited to removal of obstruction, to free drainage and ventilation, such as resection of the anterior end of the middle turbinate, which will tend to give freer drainage to both frontal and ethmoid and prevent deflection of pus into the antrum. Opening the maxillary antrum under the elevated or partially resected anterior end of the inferior turbinate, and by rasps making an opening for irrigation which will stay patent a few weeks, is often sufficient for the usual antrum, particularly if from dental infection, or due to breaking into the sinus in course of an extraction. In the latter case it will permit the mouth wound to heal, to be sutured or covered by a flap. Very extensive intra-nasal work can be done on the antrum, and will usually succeed unless there is polypoid degeneration of the mucosa. Then only radical exenteration will suffice, and must be done by a free exposure from the retracted upper lip. External operations are to be avoided if possible when the patient has vital teeth on that segment of the upper jaw. External opening, and particularly removal of the lining mucosa, will tear away the nerve supply which runs between the mucosa and the floor of the antrum.

Mere opening and establishing drainage externally in an acutely inflamed frontal will suffice. For the chronic case with persistent symptoms the Killian, preserving the bridge, is still the operation of choice, or one of its modifications such as Coakley's. Returning students from Germany have mentioned a recrudescence of the radical removal of all the outer wall of the frontal allowing a collapse of the tissue and an obliteration of the space. The deformity following this is not justifiable except to save life. Intra-nasal frontal operations, if carried beyond the simple opening of the naso-frontal duct are not likely to succeed; the very anatomy is against it. The presence of septa and irregularities on the floor, the extension of the sinus over the orbit, the finger like projections above, render it impossible to reach intra-nasally, and a dehiscence in the floor would give a fine opportunity for the penetration of the dura.

Sphenoid and Ethmoid Operations

Standardized and simplified by Sluder, working along the lines laid down by Hajek, a quarter century before. Coming always from above downward, never cutting from below upward. Very little curetting, cutting away with a forcep, limited in its scope. In his hands simple and with the rest of us safer than other types of operation. Using two knives, one with a two mm. blade and the other with a one mm. blade, taking first the longer one, inserting it beneath the middle turbinate at its anterior attachment, freeing with a cutting motion toward the septum, then turning the point downward cutting outward and down, freeing the anterior end third, then again cutting downward freeing another third, removing the remaining attachment with the snare. In this way, the entire side of the ethmoid is exposed, and the way to the sphenoid cleared. In this connection it may be mentioned that preserving the middle turbinate, if only the ethmoid is involved, and that anteriorly, may be done by bending the turbinate outward toward the septum, fracturing it at its attachment, then replacing it, although not much is gained by such a procedure.

The ethmoid is broken into by cutting from above downward with the two mm. knife, then removing the broken down fragments with the cup cutting forceps, which are made right and left. To open the sphenoid, the longer knife with a one mm. blade is passed back along the roof of the nose, and roughly the cribriform is at the level of the inner canthus, and with the back of the knife toward the upper surface there is no danger of getting into the cranial cavity. Coming to the face of the sphenoid, along the side of the septum, push directly through the anterior plate, cut down so far as can be gone, then starting at the top of the incision, cut out at an angle so that a triangu-

lar flap of the anterior wall is removed. This can be bitten away with Hajek or Feraci forceps. Hajek in his work attempted to find the ostium and with his hook tore away enough to permit the entrance of his biting forceps.

Drainage will have to be maintained and the nose kept free from crusts; dangers of the intra-nasal operation are hemorrhage and intra-cranial complications. Results are sometimes slow in being achieved and a tremendous amount of after treatment is often needed. Spectacular results are also obtained especially in the eye cases with optic nerve involvement if secondary atrophy has not taken place.

Sinusitis in children has been overlooked until recently. Fortunately, a large percentage of cases will clear up completely after the thorough removal of the affected tonsil and adenoid masses. The question of diet and nutrition in the development of sinus disease in children has been brought out recently and is a factor that is under the control of the general practitioner.

The difficulties of maintaining satisfactory relationships between the general practitioner and the specialist are not altogether the fault of either. When after a long study of the case it is referred to the specialist, it is only just and proper that he should keep the general practitioner informed of the progress, or advised of the necessity of some surgical procedure.

1026 *Sixteenth Street, Northwest.*

THE BLADDER, ITS IMPORTANCE IN GYNECOLOGICAL DIAGNOSIS AND TREATMENT.*

By GILBERT FRANKLIN DOUGLAS, M. D., Birmingham, Ala.

In the diagnosis and treatment of gynecological conditions, we are confronted with so many questions that may or may not be true until at times we overlook some of our most probable organs while searching for obscure troubles: I have reference to the urinary bladder. All of us are aware of the great importance of this organ and its welfare in the treatment of human beings. I will only refer to the female bladder as this paper is written from the gynecological viewpoint.

Let us consider for a moment the location and structure of this organ. It, as you know, is located in the pelvis, back of the symphysis pubes extraperitoneally. When empty it lies fairly well back of the pubic bones, but when full rises considerably above their upper margin. All things being equal, it is fairly well protected from injury both externally and internally. This is a muscular organ partially covered with peritoneum. It has three muscular coasts: (a) The fibers of external coat are of longitudinal type; (b) Middle layer is made up of circular fibers; and (c) Fibers of internal coat are of longitudinal direction, their fasciculi having a reticular arrangement. Mucous membrane lines its interior. The epithelial covering of the mucous membrane is of the transitional type. The three openings into the bladder are the urethra and the ureters. These have a mucous lining, this being a continuation from the bladder mucous membrane.

The bladder being a muscular organ which is fairly well protected, what are some of the factors that cause pathology?

In the first days of a baby's life this organ is thrown into activity. It serves as a reservoir for the urine after it has been secreted or excreted by the kidneys. We have the bacteria that are present in the urine conducted by the ureters to the bladder to be held until voiding takes place. This at times a source of extraneous or effete material, naturally causes irritation of the mucous membrane lining the bladder, lowering the resistance to such an extent that, when some more virulent type of bacteria comes in contact with the parts, a definite inflammation occurs.

In the female we have infections from the vagina or urethra which gain entrance to the bladder through the urethra which is only about four centimeters long. These may cause an acute inflammation, or may be of slower action and, before any special discomfort has been noticed, the condition becomes chronic in nature.

By reason of the bladder being in such close proximity to the uterus, tubes and ovaries in the female, in many instances we have an inflammatory condition as the result of inflammation of these organs and, as they are congested each month with normal menstruation, the opportunities for bladder involvement are many. Also, we have pus tubes and fibroid tumors of the uterus, either involving the bladder directly or encroaching on this organ to such an extent that its normal function is embarrassed and causes trouble later. We have as an enemy to the bladder the colon bacillus which can easily

*Read before the Chattahoochee Valley Medical and Surgical Association, Warm Springs, Ga., July 10, 1923.

gain access to the bladder through the short urethra.

The female bladder is encroached upon during gestation by the enlarged uterus the pressure causing in many instances an inability to completely empty itself, which results in a retention of urine with bacteria. This aids in causing a cystitis.

In large fibroid tumors of the uterus, the bladder is drawn almost completely out of the pelvis, except its base. At the time of removal of the tumor, the bladder is subjected to injury. At delivery (childbirth) the bladder, unless emptied at frequent intervals, lies in front of the on-coming head of the foetus, and is liable to injuries by the pressing of the bladder wall against the symphysis pubis. In instrumental delivery the organ may be injured by a blade of the obstetrician's forceps and result in a vesico-vaginal fistula, etc.

Following delivery in which there is laceration of the perineum, with a cystocele developing, we have in many instances a residual urine in the bladder with its bacteria which eventually results in a cystitis.

The bladder is subject to tumors as are the other organs of the body. We may have carcinoma polypi, or we may have ulcers from syphilis, tuberculosis, trauma, etc., with subsequent infections. There may be stones present of quite long standing and large size, that have caused no symptoms until we have an infection from some other source.

So we see that the bladder is subject to most all of the pathological changes that are present in other muscular organs which have mucous linings; in fact it is much more liable than many of them, due to its position and being subject to changes in adjacent organs.

There are many other conditions of the bladder that arise which cause considerable trouble, but the above are merely mentioned to arouse our interest in the fact that the bladder is a very definite organ to be considered from the standpoint of diagnosis and treatment in gynecology.

Having seen some of the conditions that we have, I now ask your attention while we take a few of the very definite pathological conditions of the bladder that are often overlooked in making our diagnoses.

A patient comes into the office complaining of pain in her lower abdomen. We at once confirm her assumption that she has some pelvic trouble and will immediately begin with our history, trying to establish or gain facts that will cause a conclusion that she has trouble with her vermiform appendix, either one or both of the fallopian tubes or her uterus. After having obtained our history we have the patient put on the table for examination, at which time the cervix is checked for erosion, eversion, carcinoma and old laceration or infection. Then a bimanual examination is done and, if no masses are found but patient shows tenderness in region of the tubes, the diagnosis of acute salpingitis or a parametritis is made. Patient is given douches, etc., trusting that this may correct the condition.

Now, I feel that the above-mentioned procedures are good as far as they go, but when we have a patient almost moribund, or nervous from a slight degree to that of being hysterical, who has or has not been the rounds to most "every physician in town," and who complains of pain in her lower abdomen, which improves for a short time to return even worse within a few weeks, symptoms worse when on her feet or after eating rich, spicy or acid fruits or food, and after sexual intercourse (if a married woman), I feel that certainly a patient of this type is entitled to every consideration and means or methods of diagnosis that we have, to ascertain her real trouble before "dubbing" her a neurasthenic or as being hysterical. Many of this type are suffering with some type of bladder disturbance. It may be either an acute or chronic cystitis, the latter the more probable, if it has been going for some weeks or months. Or some of them may have a stone in the bladder, a malignant tumor, or some other trouble. For us to overlook a bladder condition with frequent desire for urination, the urine at times being bloody, will not only allow our patients to continue suffering but will be the diagnostic pivot that will turn them away from a recovery.

My experience is that there are very few things that are more annoying to the patient or more liable to cause a profound nervousness than to have a severe cystitis to last over a period of several weeks or months, during which time the patient is unable to eat properly or to sleep on account of having to get up so many times during the night to void, and because of the pain which is present. Many of these patients will lose weight and become despondent, feeling that nothing will relieve them.

Now, just a word as to diagnosis. Most of these cases are easily diagnosed if we will make an unbiased examination, keeping in mind the bladder as one of the organs that can cause trouble, and if we will make a microscopical examination of the urine to determine the presence of pus cells, blood cells, epithelial cells, etc. Many of these patients come to us complaining of "kidney trouble," bring a specimen of urine, and request us to examine their "kidneys." This is done to satisfy the patient, only testing specific gravity and for albumin and sugar. If this is negative, we tell the patient of our finding without making a microscopical examination of the urine, which would be the means of detecting pus, blood, epithelia, etc., which would probably clinch our diagnosis as to a cystitis or other bladder trouble. Just here I cannot refrain from saying that I do not feel it fair to our patients or to ourselves to give them a diagnosis without making an examination.

If we are unable to arrive at a diagnosis by the ordinary means of examination—bimanual use of speculum, rectal, microscopical, etc.—we should cystoscope the patient if the pain is located in region of the bladder. By so doing, we can often clear the diagnosis which is better than to operate on a patient to find that she had a medical or non-operative condition. Those of us who do surgery often seek the more spectacular side—that is, operate rather than take more time to work out a proper diagnosis. In this way we often harm rather than help patients. Some of these cases have for years been taking Lydia Pinkham or other of the patent medicines or "cure alls" for "female trouble," as they dub it, so for us to fail on a diagnosis not only makes it embarrassing but encourages our patients to seek the chiropractors, quacks, or charlatans in the effort to find relief.

It is not the purpose of this paper to dwell on treatment or presume to give any special methods of treatment, but I feel that we should give time and special attention to get results in these cases. I will mention briefly cystitis. If we allow a patient to continue long hours of work, small amount of sleep, attending to many social functions with the eating of highly spiced foods, automobile riding, etc., and merely give urotropin or other urinary sedatives or antiseptics, we will, after a period of four to six weeks, find the patient in as bad condition as when she started treatment. To secure results in these cases, we should put patients on a rational method of treatment—rest in bed, small amount of exercise, with *no* automobile riding that would cause trauma to the bladder, bland diet, bladder irrigations with a mild antiseptic solution at intervals of at least every other day, as well as urinary antiseptic or sedative. I have mentioned cystitis as it is one of the most common bladder conditions met, but there are others that require the same diagnostic precision that would be used in reference to other organs.

In closing, let me insist that we do not "dub" as neurasthenics or neurotics gynecological patients who complain of pain in the lower abdomen, with frequent, painful urination, or who have a heavy "bearing down" feeling in the region of the vagina, because we are unable to outline an enlarged tube or other trouble with uterus or the tubes. Until we have made a careful microscopical examination of the urine and have examined the bladder bi-manually or have done a cystoscopic examination to rule out any trouble with the bladder itself, we may allow many gynecological patients to go improperly diagnosed, and we will fail in treatment as a result of a mistaken diagnosis.

Conclusions.

1. The bladder is one of the essential organs to be considered in making gynecological diagnoses.

2. The structure of the bladder is muscular, having three layers, partly covered by peritoneum, and it is lined with mucous membrane which is covered with transitional epithelium. It is located in the pelvis. It is a reservoir for the urine.

3. Bacteria gain entrance to the bladder through the ureters above, and through the short urethra from below.

4. The bladder being in close proximity to the uterus, tubes, etc., it is subjected to infection from these organs and to injury from trauma at childbirth or operations, hysterectomy, etc.

5. Cystitis may develop from residual urine with infection in bladder due to cystocele, etc.

6. The bladder is liable to tuberculosis, cancer, polypi or other tumors.

7. Many cases of cystitis or other bladder conditions are diagnosed as salpingitis, para-

metritis, or some uterine disturbance as a result of incomplete examination.

8. Many patients who are "dubbed" as neurasthenics or neurotics have as a pathological basis a cystitis or some other bladder disturbance.

9. In making our gynecological diagnoses the bladder should be dealt with as a separate organ with a definite pathological entity.

10. Before giving either a negative or positive gynecological diagnosis, take time for a proper examination, bi-manual, speculum, rectal, microscopical and cystoscopic, if necessary, where symptoms are in the region of the bladder.

11. Improper diagnosis is often the cause of patients seeking relief of the patent medicine "fiends," chiropractors, quacks or charlatans.

12. In the treatment of bladder conditions in women, keep in mind that results are often slow. The patient should be advised of this in the beginning so as to hold her confidence long enough to effect a cure. Advise her that only the most hearty co-operation will make her recovery possible.

13. Before declaring any woman a profound neurotic or neurasthenic, eliminate bladder pathology.

815-17 *Empire Building.*

X-RAYS AND THEIR THERAPEUTIC APPLICATION.*

By JOSEPH SHOHAN, M. D., Greensboro, N. C.

When the now immortal Wurtzburg Professor startled the scientific world with his epochal discovery of penetrating rays, he was somewhat at a loss as to how to designate them. In his preliminary communication to the local Physico-Medical Association at Wurtzburg, on December, 1895, we find the following footnote, "For the sake of brevity I will make use of the word rays, and in order to differentiate them from other rays, I will call them X-rays." Throughout the rest of this communication, and its continuation in March of the following year, and in his subsequent researches in this field, Roentgen continues to call this newly discovered agent, "X-Strahlen," X-rays. Not because, as is popularly believed, the discoverer was ignorant of the nature of his discovery, but rather because at that moment he could not, as he says, very well find a more appropriate designation, and for the sake of brevity, he designated them as he did. As a matter of fact, when one reads carefully the original communications of Roentgen, one is rather impressed with the depth and thoroughness of his work and how well he grasped the full meaning of his new discovery. Where he fell short of experimental proof, his wonderful scientific intuition led him aright.

At the end of his preliminary report, after a detailed description of his experiments and the resultant discovery, he put the question to himself, "What then, are these X-rays?" And he answered, "At first thought, one is perhaps inclined to think of Ultra-Violet rays;" but he very correctly declined to accept that view, and proceeded to look for another explanation. His other explanation was, that there is "A sort of relation between the new rays and light rays." In that short sentence Roentgen not only gave us the key to his great discovery, but practically left the door wide open for others to come and work out all the details; and they came and proved Roentgen right.

Whatever justification there was twenty-eight years ago for the "X," which stood for the unknown, today, with our improved knowledge of the physical and the biological action of these rays, there is no room for the "X."

When the physicist of today puts the question to himself, even as Roentgen did twenty-eight years ago, and asks, "What are these rays?" he does not hesitate the least bit, as Roentgen did then, but answers fully and understandingly, "These rays are nothing but light rays of a certain kind, and all the known facts and all the known laws, pertaining to light rays pertain also to these new rays." We know that what we perceive as light is the reaction of waves of the universal ether on the retina. Where there is a diseased or a non-functioning retina, light ceases to be, but not the ether waves. They go on forever. It is within the daily experience of everyone, even of children, that there are various colors of light, such as red, blue, violet; or we may say light varies in quality. Optical physics tells us that this difference in quality or color is due to a difference in the length of the ether wave. Our retina is so constructed as to respond to the stimulus of waves of certain lengths, but only a few in number. We can not perceive with our retina the extremely long waves, such as the wireless, nor the extremely short waves, such as those that emanate from radium, or from the X-ray tube.

*Read before the Guilford County Medical Society, January, 1924.

X-rays may be said, then, to be non-optical light rays. When we speak of light rays, we consider them from the point of view of quantity as well as quality. The quantity which is intensity, whether bright or dim, depends upon the quantity of light that falls on a given point in a given unit of time. The quality, which is color, depends upon the length of the ether wave. It is even so with the so-called X-rays. We may speak of them qualitatively as well as quantitatively. The quality of X-rays is not a matter of color, since it is not interpreted by the retina, not being optical. Their quality is their penetrating power, or penetration. Some rays can penetrate only 1/32 of an inch of a given substance, some penetrate ½ inch, 1 inch, etc. The quality of the X-rays, as the quality of the light rays, is dependent upon the length of the waves. A given wave length will always be of a certain quality, no matter where and how it is produced. Not in the sense of color, however, for they are non-optical, but in the sense of penetration. The quantity or intensity of the X-rays is the amount that falls on a given point in a given unit of time, under given electrical conditions, but quantity is not interpreted as brightness or dimness, since they are not optical.

What I have said so far, of the physics of light rays, and X-rays is by no means the Alpha and Omega of either or both. This is neither the time nor the place for a thorough discussion of the physics of X-rays. However, the few preliminary remarks I have made so far will help us, I hope, to a more thorough understanding of the problem of Roentgen-therapy, and a full appreciation of its difficulties. It is essential that we hold fast to those two conceptions of X-rays, the conception of quality, which is penetration, and the underlying physical cause of it, that is, variation of wave length, and to clearly and distinctly hold this apart from the idea of quantity.

No sooner was the news from Wurtzburg broadcasted, as the radio man says, than the medical world realized that a powerful new weapon was added to its diagnostic armamentarium, a diagnostic aid surpassing in its range of usefulness the thermometer, the stethoscope, and, for practical purposes, the microscope. Few, however, if any, realized at the time the therapeutic potentialities of this newly discovered agent. But it was not long before the medical world was face to face with incontrovertible evidence that these mysterious rays not only had the power to penetrate any part of the human body and leave a silhouette of it on the photographic plate, but that they also had a definite reaction upon the tissues exposed to them.

It so happened that the entire instrumentarium for producing the X-ray negatives was, in those early days, very crude. As a consequence, long exposures were necessary. You her now-a-days of roentgenologists making negatives in a second, or a fraction of a second. It is hardly ever necessary today to expose any part of the human body longer than fifteen seconds. In those early days, however, it was necessary to make long exposures, one minute, two, three and longer. As a result of those long exposures it was found on numerous occasions that the parts exposed showed slight superficial burns, or that the hair on the exposed parts fell out some days after the exposure. It became evident that, besides the chemical action on the photographic plate, the X-rays also have some kind of biological action. What may this biological action be? And how, and by what means, do these rays act on the living cells and tissues? To that question we have truly not yet found the final answer, though a great deal of light has been shed on this baffling mystery.

Fortunately for the ailing human race, we physicians are empiricists, from our very inception so to say. We never wait til the physicists or the chemists or the biologists tell us the last word about any remedy we wish to make use of. If we did, ailing humanity would never have known the inestimable benefits of quinine, mercury, digitalis and the entire gamut of the pharmacopeia from A to Z. It is well for us, and well for our patients, that the medical man trusts to his sixth sense and empiricism. True, somebody pays the piper sometimes in one form or another. But in the case of roentgenotherapy, it was the roentgenologist himself who paid, in some cases, the supreme price.

While the whole civilized world knows and honors the name of Wilhelm Roentgen, and deservedly so, few, if any, know the name of Leopold Freund, the father of roentgenotherapy. I will give you here practically Freund's own words of the humble beginning of one of the most promising therapeutic measures at the disposal of the medical profession. It was in 1896, less than a year after Roentgen's dis-

covery, that Leopold Freund decided to experiment and remove hair from a large naevus pigmentosus in a little girl. He was prompted to this experiment by a newspaper article he read in June, 1896, in which it was reported that a man working with X-rays became afflicted with a dermatitis accompanied by extensive loss of hair from the head; he was further prompted by another article appearing soon afterwards in the *Deutsche Med. Wochenschr.* from the pen of a Berlin doctor, who noticed the same effects after a fortnight's radiation on the head of a young man. Prompted by the two incidents Leopold Freund procedded to lay the foundation of modern roentgenotherapy, which, by the way, he is still practicing. Just to give you an idea of what roentgenotherapy meant 27 years ago, I will quote one sentence from his description of this historic experiment. In describing the X-ray tubes with which he was working, he says, "The tubes were capable of giving a roentgen photograph of a man's hand at a distance of 15 c.m., that is 6 inches, in one minute's exposure." After many days of exposure, two hours daily, Freund was rewarded by producing the desired alopecia, and, as was to be expected, some very undesirable skin reaction. In spite of that, however, Freund continued undaunted. Shortly afterwards, a host of investigators and experimenters, the world over, took up his cue. Only 8 short years later, July, 1904, Dr. Brocq, of Paris, in a preface to Belot's "Radiotherapy" says, "Radiotherapy was born but yesterday; today it may be said to dominate the therapeutics of dermatology." In a recent paper by Mackee and Andrews on "The Valoe of Roentgenotherapy in Dermatology," they enumerate a list of 81 skin diseases, in the treatment of which they make use of X-rays. They state that "Roentgen Rays constitute the most useful and successful single remedy we possess for the treatment of dermatologic diseases. The only competitor for this distinguished position is radium." Hazen, in his paper on the subject, sums up the value of roentgenotherapy by saying, "Roentgen Rays are probably the most useful therapeutic agent that the dermatologists possess today." So much for skin therapy.

It was in the very nature of things that, in administering X-rays in dermatological conditions, more or less marked reaction of the rays on deeper seated tissues was soon observed, as well as the marked and striking reaction it had on the blood. The therapeutic action of X-rays was soon claimed for many and varied conditions. As early as 1903 the late Professor Nicholas Senn, Chicago, called attention to the favorable effect of X-ray exposures on the spleen in cases of leukemia. Shortly after, Halber and Linser, and a host of others after them, showed experimentally, the effect of the rays on the white corpuscles in the blood, especially the lymphocytes. In the same year, my former chief, Professor Albers-Schoenberg, made experimentt on rabbits and guinea-pigs, producing sterility with the rays. Later, in 1905, the Americans, Brown and Osgood, reported findings of 18 cases of azoospermia in men who had been engaged in X-ray work for 3 years previously. Soon after this the effects of the rays on cancerous tissues were investigated and proven experimentally. This added knowledge brought new vistas to the fields of roentgenotherapy. It opened new avenues, new possibilities: but each bit of knowledge, each conquered bit of grounnd, was both a promise and a warning.

If X-rays are helpful in cases of leukemia, because of their action on the white blood corpuscles, what about those numerous cases in which we do not desire to affect these corpuscles? How are we to guard against these untoward effects? If X-rays can so affect certain organs, such as ovaries, as to make them functionless, how are we to produce that effect and no other, and prevent or escape the many undesirable effects that are being reported from everywhere?

Nothwithstanding the numerous obstacles and the complexity of the problem, roentgenotherapy devoloped by leaps and bounds due, mainly, to the idealism and spirit of self-sacrifice of the medical man, and the untiring efforts of the physicist.

Next to the dermatologist it was the gynecologist who was quick to see in this new agent his best ally. Already in the year 1912, only 16 years after Freund's experiment with that naevus of the little Viennese, Gauss and Lambke, of Frieberg, were able to report no less than 205 cases of varions gynecological disorders treated and cured by their improved method. Those cases were either metropathies or myomata. Similar results were reported from every important clinic in Europe, as well as America. The results of some were better than others. Some were even disappointing, but this did not halt the onward march of

roentgenotherapy. It soon became apparent that even the dismal and hopeless prognosis of the cancer victim might have to be changed. In fact the final cure and eradication of malignant growths has become the goal of roentgenotherapy.

However, in looking over the literature of roentgenotherapy in its various ramifications, whether in dermatology, internal disorders, or gynecological conditions, one can not very well escape the impression that there is a great lack of unanimity and uniformity in the results reported. One observer will laud the X-ray as the remedy par excellence for a certain condition. Another observer, equally trustworthy, is equally vehement in his denunciation of this very same remedy. To be sure, we know as practicing physicians that hardly ever has any remedial agent produced uniform results, good or bad, in the hands of all observers. But with the remedy under discussion, it has been particularly aggravating, and for a very good and sufficient reason, namely, dosage.

You who are called upon to prescribe various remedies for various conditions, day in and day out, are in the best position to appreciate the paramount importance of accurate dosage of every medicament you are to administer. You know that it is not only important to gauge accurately the amount of a given remedy your patient is to take, but you will readily admit that fully as important is it to know, whenever possible, the quality, the strength, of the medicine prescribed. The therapy of digitalis, for instance, has been improved greatly since we learned to standardize our tinctures and know, not guess, the quality of the dose the patient takes.

Imagine for a moment, if in prescribing digitalis we could only have some crudely prepared tincture, and would not know how much to order, but simply tell our patients to take a mouthful or two now and then; no doubt that was the very method our predecessors used, the so-called herb doctors, and their results were what? Not always disastrous, in fact; sometimes good, sometimes bad, sometimes indifferent.

Again imagine modern vaccinotherapy, conducted without knowledge of how to count the number of bacteria in a given quantity, just making a haphazard suspension of some growth, then take a syringe and inject some of it. How much? A syringe full? Oh, no not a full syringe, but just enough, and inject into your patient. How often? As often as he will stand for it.

You heard me tell you today, how Leopold Freund standardized and described the quality of the rays he administered to that first historic patient. He used the X-ray tube that could take a picture of a human hand in one minute. That was all he knew of the quality of the remedy he administered. How much of it did he give? He tells us, two hours a day. If you ask me why two hours and no more or no less, I could not answer to save my life, and I am sure brave old Freund could not, unless it be that his crude little generator could not stand the strain any longer.

From the early-day methods of Freund to the present day roentgenotherapy is a far cry. The vast amount of research work of the physicist and the biologist have all but solved the most important problem of roentgenotherapy, the problem of dosage. The physicist has analyzed the entire spectrum of the rays, investigated and measured the length of every wave. For when an X-ray tube is in operation the rays emitted are not homogeneous, not all of the same wave length, but of various lengths, hence various penetrations. Thanks to the unremitting work of the physicist we know how to exclude the undesirable rays, and we utilize only what we consider best for our purpose, by means of suitable filters. Our present day instrumentarium is so superior to those of the pioneer days, that one is almost inclined to consider them as the last word in X-ray instruments, though, of course, this is by no means so. We are able to produce rays of practically any desired quality, or penetration. We can administer any quantity of it, operate the machine and the tube for as long as we care to, without interruption. By means of various devices we can practically be assured of the constancy of the quality, and the exactness of the quantity.

The experimental biologists have all but solved for us the important problem of the physiological effects of the rays on living tissue. It is obvious that unless we know how the rays affect the living cell, accurate dosing is out of question.

At one time the belief was current amongst roentgenotherapeutists that X-rays have a selective action on living tissue, that they affect certain cells and shun others. We know today, that this is not so. X-rays affect all liv-

ing tissues. If one may speak of selectiveness, it is only in a cellular sense. The various cells differ in sensitiveness, some are more and some less sensitive, but no cell can withstand for long the withering action of the rays, if a sufficient quantity be administered. I say quantity advisedly. The reaction of the cell to the rays is primarily in proportion to the quantity of the rays it absorbs, and only secondarily to the quality, or length of the wave. I have an idea that the popular notion amongst physicians is quite the contrary, that they believe it is the quality that determines the reaction and decides the fate of the attacked cell. It is well to bear in mind that this is not so. The biologic reaction is in proportion to the amount of rays absorbed; those absorbed, and not those that go through and pass on deeper.

What happens to the individual living cell when exposed to the scathing action of this non-optical light, so to say? Some investigators are of the opinion that the rays strike at the vital function of the cell, its reproducing function, and thus blight its young life. The evidence of other investigators points to the damage being done to the cell wall which eventually produces cytolysis. This may explain the well-known fact that young cells, and those in process of division, are more vulnerable, because their wall-membrane is not yet fully organized, and they are thus more readily affected by the ionization that results from the absorbed rays.

The range of sensitiveness of various tissues is considerable. At one end we have lymph-tissue which is three times as sensitive as skin. At the other end of the scale we have that highly differentiated, stable, muscle tissue which is only half as sensitive as the skin.

As a rule the more stable and more differentiated a tissue is, the less sensitive it is to the action of the rays. The less stable it is and the more it approaches the embryonic state, the more sensitive it is. This is known as the law of Bergonie and Tribondeau.

The anatomic location of any given cell exerts no influence whatever on the resultant effect of radiation. It depends solely on the histologic structure of the cell and whether it is, at the time of radiation, actively mitotic or not. Lymphoid tissue, for instance, has its own sensibility coefficient, as we speak of it in roentgenotherapy, and that co-officient remains the same, whether the tissue happens to be in the thymus, cervical lymph nodes, tonsillar tissue or as sex cells.

Were Mother Nature indulgent to us, causing all our malignant growths, like our beauty, to be only skin deep, then in the light of our present knowledge of X-rays, the problem of dosage would have been comparatively simple. But for reasons best known to her, Nature ordered it differently. Most of the malignant growths with which the human race is afflicted are located at some depth in our body. To reach those growths with our X-rays, we have to force them through the skin and various underlying organs. It may be the bladder, the intestines, the lungs, the very sensitive suprarenal or what not. Furthermore in exposing any given growth to radiation, the various tissues in which it is imbedded and by which it is surrounded are practically always exposed along with it. Practically, it is seldom possible, and theoretically it is not desirable to limit the radiation to a field, just small enough, the size of the tumor. Without going into any detailed discussion, I will merely mention that in the light of our present knowledge, comparatively large fields of exposure have the advantage over small ones. We are thus irradiating not merely a small, or if you please, a large tumor, but we are actually irradiating a goodly portion of the entire body. We know that the final result of the rays on the individual cell is its necrosis, whether it is by way of its membrane or through the action of its chromosomes. This entire volume of necrosed cells, the guilty as well as the innocent, have no other means of exit from the body but through the blood and lymph circulation. But the blood is already strewn, so-to-say, with the slaughter of its own innocents. The blood, too, we must bear in mind, was bombarded; it was right in the very path of the rays when the tumor was irradiated. The lymphocytes of the blood, we know, are particularly sensitive under the fire of X-rays; and, in speaking of the blood, we must not lose sight of the fact that while a limited portion of the body, ever so small, is being irradiated, the entire volume of the body-blood is irradiated along with it. The blood keeps on circulating through our limited area, and, after a given time, the entire blood has been under fire. And it is very often a body already sick, cachetic, with one foot in the grave, that is called upon to take care of and dispose of at short notice the cy-

tolitic remains of all kinds of cells. No sinecure.

These practical considerations are today agitating the best minds amongst roentgenologists the world over, and to a certain extent are the causes for the lack of unanimity in the results reported by various investigators of which I spoke above. But we are slowly emerging from this discord; the mist is being dissipated by our better understanding of the cancer problem as a whole.

It must be quite obvious to all of us that, though the knowledge of any therapeutic agent be ever so thorough, its successful application in medicine will depend in a measure upon our knowledge of the condition in which we wish to apply that agent. Hence, the question quite naturally forces itself to the fore, "What is Cancer?" Is cancer merely a local dyscrasia, with secondary systemic disturbances, anemia, cachexia, etc., or is cancer primarily a systemic morbid condition with local manifestations of new growth?

Surgical therapy in its very nature assumed, with no good evidence to the contrary, that cancer was a local disease. Remove the cancer and you cure, or at least may cure, your patient. Hence, the goal and ideal of surgery had been, as perforce it had to be, the radical extirpation of the invading tumor; remove it, stem, branch and root. In cancer of the breast, remove breast, pectoral muscles, fascia, glands,—anything within sight or out of sight. In cancer of cervix uteri, hysterectomy, then panhysterectomy, the Wertheim operation as the last word. Who will gainsay that modern surgeons by their courage and their skill, by their ingenuity and their dexterity, have far surpassed all our expectations? It is nevertheless a sad, sad fact, that the results of surgery in malignant growths have, to say the least, not been commensurate with the efforts and devotion of our indefatigable surgeons.

When the roentgenologist ventured into the field of cancer therapy, he quite naturally followed in the footsteps of the surgeon. He, too, aimed at the destruction of the invading parasite. He bent all his efforts toward the accomplishment of this surgical aim, and beat the surgeon at his own game, by doing it without surgery. It is rather a bit too soon to talk of results. All one can say so far is that they have not been much worse, if any, than the results of surgery. But while the roentgenologist was busily engaged in improving his instrumentarium to produce waves of shorter and still shorter length in order to pentrate and destroy the deep-lying cancer, and go the surgeon with his scalpel one better, evidence is accumulating that such a feat is seldom if ever possible in the practical application of the X-rays, and what is better, that it is not really necessary.

No less an authority than Opitz of Freiberg stated recently, "that while it is possible to kill cancer cells by roent-ways the dose required would be several times as large as the dose actually employed, the action of the rays does not consist in a direct destruction of the cancer cells. They cause the formation of chemical substances which may influence the cancer even if the rays are not applied directly to it. The hope of applying a dose of roentgen rays great enough to destroy cancer is utopian."

As a matter of fact, it has been the experience of many observers that cancerous tissues may react to irradiation of distant parts of the body. I have lived to see one or two cases of distant metastases disappear, after irradiation of the main tumor some distance away. As a matter of fact, evidence is slowly but surely accumulating that would tend to show that cancer is not primarily a locan phenamenon, but is a systemic dyscrasia with secondary local manifestations. If that be so, then the complete eradication of this secondary phenomenon, whether by the surgeon or by X-ray, is not a sine qua non to a cure for this dyscrasia, and when eradication is performed, a cure need not necessarily follow, and as a matter of fact, does not in the vast majority of cases.

Surgery no doubt offers the best method for fairly complete destruction or removal of the parasitic growth, but no more; X-rays on the other hand, will in vain try to compete with surgery as a means for the destruction of the tumor. However, it offers what surgery can never do, a possible systemic cure or counteraction to a systemic disturbance. If that be so, then the effect of the rays on the blood and surrounding tissues is not only not to be avoided as injurious, but actually desirable for its beneficial systemic action.

Professor Loeb says that there are intrinsic sources of radioactivity within the human body. Bachem, in his recent work, says, "the atmosphere we breathe contains radium emanation. Nearly all springs contain radium

emanation;" and he goes on to say, "that while primitive man was always in contact with radioactive materials by living in caves, sleeping on the ground, drinking from springs, etc., these things are entirely lacking in the household of civilized man. The human system to be well balanced must have a certain amount of radioactive factors; deprived of those through our super-civilization, we must needs suffer for the lack of them." How, in which way, is this disturbance expressed or manifested? Very likely in many ways; and may not one of them be that dyscrasia which manifest itself through parasitic growths which we call cancer?

In fact Bachem, too, says as much. To quote him again, "From this viewpoint, the administering of radium in small doses is a very natural cure. It re-establishes conditions, which are excluded by our modern civilization."

If our civilization has deprived us of our due share of radioactive substances, with the consequent diseases due to such deprivation, may it not be that this very same civilization has at last produced the X-ray tube to supply us artificially with the necessary radioactive factors to help us counteract those systemic disturbances?

I detained you perhaps too long with a discussion of cancer therapy, not that it forms in any sense the chief activity of the roentgenologist, but because the cancer problem per se, is today uppermost in our minds on account of its appallingly increasing dissemination and consequent high death rate.

To the roentgenotherapeutist cancer is only a small corner of his field. His wagon is hitched to every star in the medical firmament, dermatology as well as internal medicine, surgery as well as gynecology.

It is quite true that the results of X-ray therapy in operable carcinoma are still *sub judis*. It is rather early to speak of permanent cures; all one can say is that the results so far have been decidedly encouraging.

As for inoperable cases, the administration of X-rays is the only service we can at present render the unfortunate victims, very often with a surprisingly gratifying outcome.

Pre-operative and post-operative X-ray treatment have now practically become the rule in the foremost gynecological clinics.

At one time it was considered by X-ray therapeutists that the suspicion of sarcomatous degeneration of a myoma was a contraindication in treating it with X-rays. Today we find Vintz and Seitz of Erlangen treat their cases of sarcomatous degeneration with the rays. They even make use of this treatment to differentiate between sarcomatous degeneration and cancer uteri. If the growth disappears or recedes shortly after the treatment, then they take it for granted that they are dealing with a sarcoma. Such is their confidence in roentgenotherapy for sarcomata.

I have already called to your attention the fact that the effect of the rays on a given tissue is regardless of the anatomic location. Sarcomata wherever found yield as readily to X-ray therapy as do the sarcomatously degenerated myomata.

In the foremost gynecological clinics of Europe, notwithstanding the prevailing distress there, we find a well organized X-ray laboratory with two or three machines operating every day where hundreds of suffering women are being treated and relieved of a variety of symptoms caused by various metropathies and uterine growths. In this class of patients, with few contraindications, the X-rays are now considered the remedy of choice by the best informed clinicians.

Beclere recently reported 700 cases of various gynecological disorders with successful results in 99 per cent, and only in 9 cases did he have to resort to surgery. In discussing the contraindications to X-ray therapy, he states that X-ray therapy is contraindicated only in cases in which surgical intervention, for some urgent reason, becomes absolutely necessary. In other words, there are hardly ever any contraindications.

The internist, too, has long found in roentgenotherapy a useful agent in a variety of conditions. Suffice for this occasion to mention the excellent results obtained in hyperthyroidism, and the relief, even though not always permanent, in case of certain blood disorders. Exposure to the soothing effects of small doses of roentgen rays will often relieve the excruciating pains of neuritis, when every other remedy has failed.

Roentgenotherapy today is still inits infancy. Its potentialities are immense. With proper co-operation between the roentgenotherapeutist and his confreres in the medical profession, these potentialities are sure to become actualities.

HYPERTROPHIC PYLORIC STENOSIS IN A CHILD FOUR YEARS OF AGE.

By T. S. USSERY, M. D., Norton, Va.

Most authors agree that this condition is found very early in life—three to six weeks of age,—about eighty per cent occurring in boys; the individuals seldom live longer than one year: hence the writer's reason for reporting this case.

Case Report

The child was first seen at home on March 2, 1924. Girl age four years, two months, fairly well nourished but undersize. Family history: Father and mother living and well; two older brothers living and well; one sister eighteen months younger, a normal child—tuberculosis and syphilis denied. Past history: Patient at birth weighed six pounds; normal delivery; breast fedo was considered hale and hardy till nine months of age at which time she had an acute attack of vomiting lasting about ten days. These attacks continued at intervals of about sixty days until present. Patient had had usual diseases of childhood excepting scarlet fever. Present illness: Patient began vomiting two days since; was unable to retain food or water—the vomiting was projectile in character.

Examination revealed fairly well nourished child, although somewhat dehydrated; palpable tumor the size of a goose egg at the upper right side of abdomen; visible peristalsis from tumor downward across abdomen; abdominal muscles very flaccid; slight distention extending across upper abdomen; skin elastic, but dry and scaly; tongue red, coated and dry; only bile stained mucus in stools; heart and chest negative.

Treatment: All food was withheld for twenty-four hours, saline proctoclysis, atropine sulphate, grains one to one ounce water, were given, ten drops on tongue every three hours until physiological effects were visible. At end of twenty-four hours child was fed to two ounces cream of wheat, cooked three hours, at intervals of four hours, with result that after another twenty-four hours she was able to retain this and in addition two ounces whole boiled milk every two hours. Within one week from time of onset child was taking full diet and had apparently fully recovered.

On April 24th, forty-five days later, I was called and found patient in same condition as previously described except more markedly emaciated. The same line of treatment was again carried out with no effect; patient continued to vomit, vomiting even ice water given on tongue with medicine dropper for ten days, when death occurred.

Post-mortem examination revealed a large stomach with capacity of sixteen ounces liquid; hypertrophy of muscular wall; circular fibers at pyloric orifice more so than at any other point; maked hyperplasia of mucous coat, beginning at the gastro-duodenal orifice and extending down the intestine for three inches; the overgrowth is very marked in both muscular and mucosa coats. The pyloric canal would admit a small probe with difficulty.

A CASE OF VINCENT'S ANGINA TREATED WITH ANTIMONY POTASSIUM TARTRATE INJECTED INTRAVENOUSLY.

By RAYMOND A. VONDERLEHR, M. D., Richmond, Va.

While it is not universally believed that the bacillus fusiformis and the spironema vincenti are the etiological organisms in Vincent's angina and allied conditions, their constant presence in these lesions is conceded by all, and it is highly probable that they are the causative factors. Antimony potassium tartrate has been used extensively and advocated by many authors as a specific in the treatment of granuloma inguinale; it has also been in more or less general use in the treatment of trench mouth. Because of the presence of the same organisms in Vincent's angina, Driscoll[1] has recently recommended the use of antimony potassium tartrate in the treatment of this disease also. In the following case, in which older methods were also used, it is suggested that the quick recovery was due to some procedure not hitherto practised.

H. B., white, female, aged 28 years, divorced, on examination, April 29th, 1924, complained of severe and constant headache and pains in the back, which began about eighteen hours before. A period of malaise had preceded the onset by about twenty-four hours. There was also some soreness of the throat, as well as dysphagia, but the headache was the predominating symptom.

Physical examination revealed a very red and swollen pharynx and left tonsil, while the right tonsil was less inflamed; the head was

1. Driscoll, T. Latane, Va. Med. Monthly. "The Treatment of Vincent's Angina." July, 1924.

otherwise negative. The anterior cervical glands were enlarged and somewhat tender; the rest of the lymphatic glandular system was normal. The heart, lungs and abdomen were negative. Temperature was 102 degrees; pulse 104. The temperature never went above 102 thereafter, and averaged 99.5; the average pulse throughout the course of illness was 95, and it never went above 105. At this time codeine, gr. i, with aspirin, gr. v, every four hours, and a gargle, with saturated hydrogen peroxide solution every four hours, were prescribed.

April 30th.—The patient continued to complain of headache; backache was much relieved. The throat, however, had meanwhile become worse; pain was severe and dysphagia marked. On examination, the left tonsil was very markedly enlarged and covered with a grayish yellow exudate; the right tonsil and pharynx were also inflamed and swollen. Halitosis was marked. Swabbing of the throat with mercurochrome solution every four hours was ordered to alternate with the gargle.

May 1st.—Examination of the throat revealed a depressed, ragged ulcer over the entire left tonsil and posterior pillar; covering this lesion was a dirty, grayish yellow membrane, which when removed revealed a red, bleeding surface. The use of all oral disinfectants was curtailed for six hours when smears and cultures were taken. The smears showed many fusiform bacilli and spironema vincenti; cultures were negative for the diphtheria bacillus. Hemoglobin was 80 per cent. Erythrocytes, 4,840,000. Total leukocytes, 18,400. Differential: polymorphonuclears, 76 per cent; small lymphocytes, 15 per cent; large mononuclears, 8 per cent ;and eosinophiles, 1 per cent. The blood Wassermann was negative. 0.025 gram of antimony potassium tartrate was administered intravenously in 2.5 c.c. of sterile distilled water without reaction.

May 2nd.—The pharyngeal and right tonsillar inflammation had almost subsided. The left tonsil still had the same appearance except that the swelling had somewhat disappeared. Another culture for the diphtheria bacillus was negative. The patient obtained relief from the headache.

May 3rd.—The ulcer had decreased slightly in size and swelling was much diminished. On May 4th the ulcer was about one-half its original size and swelling was negligible; 0.05 gram of antimony potassium tartrate was administered in 5 c.c. of sterile distilled water and this was followed by a slight reaction in which the emetic syndrome predominated. The day following, the tonsil was much improved, and on May 7th the entire throat was normal except for a very slight enlargement of the left tonsil.

611 *Medical Arts Building.*

Analyses, Selections, Etc.

Treatment of Syphilis with Bismuth.

In 1921 Sazerac and Levaditi introduced the salts of bismuth into the antisyphilitic pharmacopeia. The salts of bismuth or bismuth itself, introduced parenterally, have a considerable and sure spirillicide action. Treponema disappear rapidly from the cutaneous or mucous lesions, but not as rapidly as upon administration of arsenic, for instance 606 or 914. If taken by mouth it seems to lose this action. The effect upon the internal organs is just as sure. Aortitic syphilis has been cured by it, and good effects have been reported from it on the nervous system. This has been supposed because bismuth, contrary to arsenobenzol appears in great quantities in the spinal fluid. But it is not generally considered more effective than the arsenics. The Wassermann reaction is distinctly influenced, but slower than by arsenic.

As a whole, bismuth holds a place between arsenic and mercury, and probably more close to the latter. Milian, whose opinion was accepted by Leredde, estimates the curative value of arsenobenzol at 10, that of bismuth comparatively at 7, and mercury at 4.

Its two great indications are arseno resistance and arsenic intolerance. Among the first group are patients who do not at all or no longer derive benefit from the remedy. They derive quick improvement from bismuth or mercury. Either the spirochetes from the onset have certain qualities which counteract the arsenobenzol, or they become accustomed to it. Other writers call patients who, after a longer or shorter time, show recurrence even where correct arsenical treatment has been administered, or such as can not definitely be sterilized by arsenobenzol resistant. The fact is that one can in no case be sure of this lasting sterilization. The author gives bismuth treatment after all benefit seems to have been derived from arsenic which would seem possible, whether in hereditary or acquired, old or recent cases.

The number of bismuth preparations is large, the first to be used was the tartrobismuth of potassium and sodium, soluble salts, either in oily or aqueous solution. The latter is preferable, because it is not so apt to accumulate, but the oily is used more often because the injections cause less pain. The tartrobismuth contains variable quantities of metal bismuth, according to the special preparation. Sigmuth contains 0.025 gm. of bi-metal per c. c.; luatol 0.032 gm.; trepol (an oily suspension, while the other two were aqueous) contains 0.064 gm. of bi-metal per c.c. Another group is the iodobismuthates of quinin; they are insoluble and oily suspensions. Among them rubyl contains 0.019 c.c.; quinby 0.024; erythrolues 0.08; neoby 0.02 c.c. of bi-metal. The last is an iodobismuthate of vanadium A third group of the bismuths are the hydroxids, which are insoluble and in oily suspension. Among them muthanol contains 0.064 c.c. bi-metal; curalues 0.08; spirillan 0.08. Aside from these there are aqueous suspensions of pure bismuth metal. The best known is neotrepol which contains 0.096 bismuth metal per c.c. Ionoid of bismuth or colloidal bismuth contains only minute doses of metal bismuth (3 mg. per c.c.). Bismuthoidol, also a colloidal bismuth, contains 4 mg. per c.c. All bismuth preparations are sold in 1, 2, or 3 c.c. ampoules. There are many other preparations which are not so much in use (oxychlorid of bismuth or bischlorol, subgallate of bismuth, etc.) Bismuth has a spirillicide action equal to its metal contents.

The therapeutic dose varies from 0.20 gm. metal bismuth to 0.40 gm. or as much as 0.50 gm. per week. Some clinicians make one, others two or three injections per week. Some use 0.10 gm., others 0.15 gm., 0.20, or 0.25 as a single dose, some more. Each series of administrations total around 2 grams. The intermissions vary between one and two months. The Belgian Dermatological Society gives as a total 2.40 to 3 gm. The toxic dose is near the therapeutic, although not many definite statements are made. With hydroxids or iodobismuthates the author is of the opinion that 0.25 gm. per injection must not be exceeded, and 0.30 gm. per week is the maximum. He makes 10 injections at 6 days intervals, which will distribute the series of injections over two months. Then follows an intermission of one month.

Colloidal bismuth preparations and the tartrobismuthates are the only ones which should be used intravenously. If the intravenous method is employed the patient should have an empty stomach, and the injections be made while he is lying in bed, and slowly, the introduction lasting a minute. The dose of 0.05 metal should not be exceeded in an injection, and distilled water should be used, three parts to the dose. When puncturing the vein, the same needle should not be used which was employed in aspirating the liquid in the ampoule. Subcutaneous injections are painful and leave nodes All bismuth preparations can be used intramuscularly. They should be made into the sacro-lumbar mass or into the upper part of the hip. The best place is below the iliac crest. The oily suspensions must be carefully shaken before they are used. The left hand ought to compress the wound while the syringe is withdrawn. The injections are made alternately on the right and left sides.

The complications arising from bismuth therapy are either due to technical mistakes or to intolerance toward the drug, or the therapeutic reaction of the tissues. Those due to technical fault are not very serious. In the intramuscular use pain is often experienced. It passes from the point of injection on to the lower extremity, especially when tartrobismuthate is used. Injury to one of the important nerves must never occur. Suppuration is not permissible. Often the metal will be deposited at the point of injection and forms a permanent dark spot. This must likewise be avoided. The Herxhemier reaction is less frequent in bismuth administration than from arsenobenzol. If it appears, the dose must be diminished. Most patients tolerate bismuth very well, especially the hydroxids. Hemoclastic complications are rare, but nitritoid symptoms, especially after intramuscular injections, are not uncommon. They do not generally last long. Urticaria seems frequent. Nausea and vomiting will often accompany the rise of temperature. The remedy to counteract this shock is intramuscular or subcutaneous injection of 1 mg. of adrenalin. The lesions in the mouth are more frequent than the hemoclastic from bismuth. The prognosis of these lesions is good. Renal complications have become rare. The general symptoms are sometimes pronounced in the form of fatigue, asthenia, emaciation, pallor, and anemia.

The aim of bismuth treatment is steriliza-

tion and the disappearance of infection. This may not always be possible, especially in older cases. The treatment must be early, energetic, continued and well controlled.

Every old case of spyhilis must be first treated with arsenobenzol or novarsenobenzol. It should be administered in 8 injections with growing doses, each series with an intermission of three weeks. If the patient shows intolerance of arsenobenzol, bismuth will be given.

A mmber of syphilitics do not tolerate bismuth well. This may be the case in patients who are similarly intolerant of arsenobenzol. If the reaction is slight one may continue the treatment in a milder form. If albuminuria exists or serious skin manifestations, or hemorrhage, the treatment seems contraindicated. If possible, the patient should be kept quiet for a long time. If bismuth can not be given one may try mercury, in the form of bichlorid of mercury pills, two or three at 0.01 gm. per day for three weeks, or intravenous injections of cyanid 0.125 gm. or 0.025 in five to 10 c.c. of distilled water every day for three weeks. If the patient does not tolerate this, one will have to leave syphilis to take its course.

The author is of the opinion that the mixed treatment is not advisable, except to follow one remedy by the other.—(*G. Drouet. Jour. de Med. de Paris.* 1923. *XLII*, 813, 837).

The Truth About Medicine

In addition to the articles enumerated in our letter of May 29th, the following have been accepted:

Abbott Laboraotries
  Benzyl Fumarate
Deshell Laboratories
  Petrolagar
    Petrolagar (Unsweetened)
    Petrolagar (with Phenolphthalein)
    Petrolagar (Alkaline)
Hoffman-La Roche Chemical Works
  Digalen-Roche (Cloetta)
    Ampules Digalen-Roche (Cloetta), 1.1 c.c.
    Tablets Digalen-Roche (Cloetta)
    Hypodermic Tablets Digalen-Roche (Cloetta)
  Oleo-Bi-Roche,
    Ampules Oleo-Bi-Roche, 2 c.c.
Mead Johnson and Company
  Mead's Cod Liver Oil
H. A. Metz Laboratories
  Sulpharsphenamine-Metz
    Sulpharsphenamine-Metz, 0.05 Gm. Ampules
    Sulpharsphenamine-Metz, 0.75 Gm. Ampules
    Sulpharsphenamine-Metz, 0.1 Gm. Ampules
    Sulpharsphenamine-Metz, 0.15 Gm. Ampules
    Sulpharsphenamine-Metz, 0.3 Gm. Ampules
    Sulpharsphenamine-Metz, 0.45 Gm. Ampules
    Sulpharsphenamine-Metz, 0.6 Gm. Ampules
Frederick Stearns and Company
  Insulin-Stearns
    Insulin-Stearns Single Strength
    Insulin-Stearns Double Strength

NEW AND NON-OFFICIAL REMEDIES.

Neutral Acriflavine—Abbott, 0.1 Gm. Ampules.—Each ampule contains 0.1 neutral acriflavine—Abbott (see New and Non-official Remedies, 1924, p. 24). The Abbott Laboratories, Chicago.

Insulin—Stearns.—A brand of insulin. For a discussion of the actions, uses and dosage, see New and Non-official Remedies, 1924, p. 149. Insulin—Stearns is marketed: insulin—Stearns, single strength (5 c.c. vials, containing 10 units in each c.c.) and insulin—Stearns, double strength (5 c.c. vials containing 20 units in each c.c.) Frederick Stearns and Co., Detroit.

Digalen—Roche (Cloetta).—A sterile solution containing in each c.c. 0.3 Mg. of an active derivative of digitalis as isolated by Cloetta, containing 7.5 per cent. of alcohol. The actions and uses of digalen—Roche (Cloetta) are the same as those of digitalis. The average dose is from 1 to 2 c.c. (15 to 30 minims). The maximum daily dosage is 6 c.c. (90 minims). Digalen—Roche (Cloetta) is also suitable for intramuscular and intravenous injection. Intravenous injections of 1 c.c. (15 minims) may be repeated at intervals of one-half to one hour as necessary. Digalen—Roche (Cloetta) is also marketed as follows: Ampules digalen—Roche (Cloetta), 1.1 c.c.; tablets digalen—Roche (Cloetta) (equivalent to digalen—Roche (Cloetta) 0.5 c.c.); Hypodermic tablets digalen—Roche (Cloetta) (equivalent to digalen—Roche Cloetta), 1 c.c.). The Hoffman-La Roche Chemical Works, New York. (Jour. A. M. A., June 14, 1924, p. 1937).

Petrolagar.—A mixture composed of liquid petrolatum 65 c.c., agar 10 Gm., sugar and flavoring 2 Gm., sodium benzoate 0.1 Gm., water to make 100 c.c. Petrolagar has the actions of liquid petrolatum. It is claimed that the emulsification of the liquid petrolatum increases its efficiency, and that the agar adds soft bulk and tends to increase peristalsis. The average dose of petrolagar is 15 c.c. morning and night. Petrolagar is also marketed in the form of petrolagar (unsweetened), containing no sugar, petrolagar (with phenolphthalein), containing 0.33 Gm. phenolphthalein per 100 c.c., petrolagar (alkaline), containing milk of magnesia 25 c.c. per 100 c.c. The Deshell Laboratories, Inc., Los Angeles. (Jour. A. M. A., June 28, 1924, p. 2119).

PROPAGANDA FOR REFORM

Chologogues.—As early as 1868, a British committee appointed to investigate the subject arrived at the conclusion that mild mercurous chlorid (calomel), mercuric chlorid and taraxacum—all reputed chologogues—do not increase the flow of bile but probably act on the bile expelling apparatus. Recently the latest experimental procedure was applied to judge the status of a number of substances that have at various times been alleged to influence bile flow. With the exception of bile salts, negative results only were obtained with such substances as calomel and salicylates. All dependable evidence warrants the recommendation that clinicians consider the ad-

visability of abandoning therapeutic efforts to "stimulate" the liver through the use of substances having alleged chologogic effects. (Jour. A. M. A., June 7, 1924, p. 1867).

Gly-So-Iodonate.—A few months ago the Council on Pharmacy and Chemistry published a report on an alleged bactericide "Gly-So-Iodonate." The product is put on the market by a company whose name is much more imposing than its importance warrants—"The National Medical Research Laboratories," of Milwaukee, earlier known as the "Wisconsin Medical Laboratories." Charles E. Hutchings, who claims to be a "medical man," seems to have been the prime mover in putting "Gly-So-Iodonate" on the market. Hutchings, in letters, has stated that he is a "graduate of Kings College of London" and has claimed that he is a "member of Marquette Medical College." However, an inquiry directed to Kings College of London brought the reply that they had no record of a man of this name on the medical register. The Marquette University School of Medicine seems to be equally ignorant of Hutching's connection with that institution. After the Council's report had been published, the National Medical Research Laboratories sent broadcast a six page circular, three pages of which were devoted to what purported to be a "Partial List of Representative Industries Protecting Their Many Thousands of Employees from Infection With G-S-I." As it seemed reasonable to suppose that a concern which published a misleading formula for its product would be quite as likely to publish misleading references for the value of its product, some of the "representative industries" listed by the exploiters of "G-S-I" were written to. From the replies which were received, it seems evident that the basis for at least some of the references published by the exploiters of Gly-So-Iodonate rests on as flimsy a foundation as the alleged formula of the stuff and the educational claims of Charles E. Hutchings. (Jour. A. M. A., June 7, 1924, p. 1881).

Nonspecific Protein Therapy.—The mechanism involved in nonspecific therapy concerns cell stimulation. Weichardt assumes that this involves all cells. Other researches indicate that certain cell groups may be more particularly concerned. On stimulation, the cell becomes more permeable. Antibodies, enzymes, fibrinogen, etc., leave the cell. Under certain conditions a rapid destruction of organisms may take place to an extent that may overwhelm the patient by sudden liberation of toxic bacterial products. The first phase of the reaction corresponds in many ways to a parasympathetic effect. Later a second phase follows during which the patient is improved. This phase may exist for a considerable time and is clinically apparent in the improvement of the patient. No cases are reported in the literature in which chronic urticaria has been so treated although many related conditions on evident or probable sensitization have been improved (hay-fever, asthma, migraine, epilepsy, intermittent hydrarthrosis). Great caution must be used in the employment of the more active substances such as typhoid vaccine, peptone and collargol. Very small doses of relatively mild activity (tuberculin, casein, turpentine) are much more suitable. This has been the experience in chronic arthritis. The dosage must be adjusted to suit the patient, care being taken to keep the dose at all times just below that which causes a focal reaction at the site of the lesion. (Jour. A. M. A., June 7, 1924, p. 1883).

Morphin Addiction.—The so-called withdrawal symptoms which arise in those who have become accustomed to large doses of morphin are well known to all practitioners who are compelled to deal with such habitues. To account for these symptoms it has been alleged that the continuous taking of morphin causes the presence in the blood serum of a substance having a protective effect against this drug. However, it has been shown that the blood of a tolerant animal does not contain any protective substance against morphin, nor was there any substance capable of conferring any immunity to the toxic action of morphin on an animal into which it is injected detected in the blood serum of a human being who has acquired a high tolerance to morphin. Also, it has been proven that a specific toxic substance is not produced by habituation to morphin. Since some methods of treating drug addiction have been based on the belief that a toxic substance is formed, the time has arrived for seeking a new point of departure in the explanation of the various manifestations that are presented by drug addicts. (Jour A. M. A., June 14, 1924, p. 1976).

Whittington's Consumption Cure a Fraud.—The postal authorities have closed the mails to Frederick Graham and the Tuberculosis Home Remedy Company by the issuance of a fraud order. The Whittington "Cure" was the subject of a report in The Journal of the American Medical Association in 1916; analysis in the A. M. A. Chemical Laboratory at that time showed it to be a flavored syrup devoid of any potent ingredients except alcohol. The evidence brought out in the hearing by the Post Office authorities showed that the preparation was claimed to contain sugar, glycerin, alcohol and the extract matter from pyrus malus follia (apple leaves), gentian root, rhamnus purshiana (cascara) and licorice root. Analyses in the Bureau of Chemistry of the Department of Agriculture indicated the absence of gentian and the presence of only traces of cascara and licorice. No evidence was submitted to show how apple leaves had come to be hit upon as a "cure" for tuberculosis. (Jour. A. M. A., June 14, 1924, p. 1983).

Exploiting the Cancer Sufferer.—The week of the annual session of the American Medical Association was chosen as a propitious time to resurrect two discredited cancer cures. A Philadelphia paper announced that the cause of cancer had been discovered and that a treatment had been evolved which was producing remarkable results. The publicity dealt with the alleged cancer serum of T. J. Glover, of Toronto. This received some attention in 1921, but was not shown to be of value. The second "cancer cure" to be resurrected was that of Dr. Wm. F. Koch, of Detroit. Koch's nostrum was brought to the attention of the newspapers of the country by one C. Everett Field. It received some attention in 1921, and was reported on unfavorably. The new publicity given to these two discredited "cures" is producing the usual effect. Sufferers from cancer both directly and through their physicians are frantically trying to learn whether there is any warrant for the claims so widely broadcast. (Jour. A. M. A., June 21, 1924, p. 2054).

Atussin, Peptoproteasi, Paraganglina Vassale, Fosfoplasmina, Asmoganglina and Endo-Ovarina Tablets Not Accepted for N. N. R.—These products are manufactured in Italy and sold in the United States by the Neother Products Co., New York. Atussin is claimed to be a suprarenal preparation; Peptoproteasi, a gastric ferment preparation; Paraganglina Vassale, a suprarenal product; Fosfoplasmina, an egg yolk extract; Asmoganglina, an extract of the suprarenal and hypophysis, and Endo-Ovarina Tablets, an ovary preparation. In each case the statements made in regard to composition were indefinite and the therapeutic claims unwarranted. The booklet

which the Neother Products Co. uses as advertising for these products consists of 151 pages, presents a jumble of fact and fancy, and reads more like a patent medicine almanac than a scientific treatise. The Council on Pharmacy and Chemistry found Atussin, Peptoproteasi, Paraganglina Vassale, Fosfoplasmina, Asmoganglina and Endo-Ovarina Tablets unacceptable because: 1, their composition is indefinite or scmisecret; 2, the therapeutic claims are unwarranted, and 3, their recognition would be the means of advertising proprietary products which are not accepted. (Jour. A. M. A., June 21, 1924, p. 2068.)

Dose of Thyroid For Children.—Thyroid effects are generally obtained by the administration of Dried Thyroid U. S. P. (Thyroideum Siccum). There is, however, no fixed dose of thyroid for children. The amount of dried thyroid to be administered must be determined in each case. A safe initial dose for a child three years of age would probably be 0.015 Gm. of dried thyroids two or three times a day. The best way is to start with a small dose and to gradually increase it until either satisfactory improvement or symptoms of intolerance manifest themselves. As soon as the desired effects are obtained or symptoms of intolerance manifest themselves, the dosage must be reduced. (Jour. A. M. A., June 21, 1924, p. 2070).

Therapeutic Lamps.—The Kromayer water-cooled mercury-quartz light and the Burdick and Hanovia mercury-quartz lights are considered sources of ultraviolet radiation of strong intensity, emitting a large quantity of long and short ultraviolet wave lengths. In contrast to this, carbon arc lamps, of which the ultra-sun lamp is an example, are used more particularly for the rays present similar to those in the spectrum of sun-light; namely, the invisible heat rays, the visible rays and the longer ultraviolet rays. The nonburning feature of the ultra-sun lamp is due to the practical absence or very weak intensity of the short ultraviolet rays which are the wave lengths that irritate and easily produce an erythema. The advertisers of the ultra-sun lamp stress the fact that the spectrum of their lamps is a continuous one, whereas the spectrum of the mercury-quartz light has gaps. No one has yet proved, however, that the presence of gaps in a spectrum is a drawback in the clinical use of that light. Furthermore, no one has proved that the burning or erythema-producing rays of the mercury-quartz lights are disadvantageous. It cannot be said that the carbon-arc lamp is less valuable than the mercury quartz lamp for certain diseases. The exact indications for the different sources of light have not been worked out. (Jour. A. M. A., June 28, 1924, p. 2138).

Vehicles for Prescriptions.—The following is a list of vehicles that can be used to prepare pleasant tasting mixtures: Aqueous Elixir of Glycyrrhiza N. F., Compound Elixir of Cardamon N. F., Compound Elixir of Almond, N. F., Compound Elixir of Vanillin N. F., Glycerinated Elixir of Gentian N. F., Elixir of Anise N. F., Red Aromatic Elixir N. F., and Compound Syrup of Asarum N. F. The formulas of these preparations may be found in the Epitome of the U. S. Pharmacopeia and National Formulary, published by the American Medical Association. (Jour. A. M. A., June 28, 1924, p. 2138).

Book Announcements

Fertility and Sterility in Human Marriages. By EDWARD REYNOLDS, M. D., and DONALD MACOMBER, M. D., Boston Mass. With a section on the **Determining Causes of Male Sterility,** by EDWARD L. YOUNG, JR., M. D., Boston, Mass. Illustrated. Philadelphia and London. W. B. Saunders Company. 1924. 8vo. 285 pages. Cloth. Price, $5.00.

Here is a comprehensive though brief monograph on a subject that is awakening general professional interest. The work brings together all the knowledge on the subject scattered through the literature, interpreting it by the large clinical experience of its authors.

Until recently none but gynecologists took any particular interest in sterility. Now the genito-urinary surgeon is assuming his part of the obligation and in view of the vast amount of mischief being wrought by the frantic efforts at birth control, the entire profession should be aroused. Prevention is now the watchword in enlightened medicine. Here is a book worth reading.

H.

Eat Your Way to Health. A Scientific System of Weight Control. By ROBERT HUGH ROSE, A. B., M. D., Instructor, Post-Graduate Medical School, New York. New Edition, thoroughly revised and enlarged. Funk and Wagnalls Company. New York and London. 1924. 12mo. Cloth, 246 pages. $2.00 net.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery and the Various Specialties. By Leading Members of the Medical Profession Throughout the World. Edited by HENRY W. CATTELL, A. M., M. D., Philadelphia, and COLLABORATORS. Volume II. Thirty-fourth Series, 1924. Philadelphia and London. J. B. Lippincott Company. 1924. Octavo. Cloth. Illustrated. 306 pages.

Mind and Medicine. By THOMAS W. SALMON, M. D., Professor of Psychiatry in Columbia University. New York. Columbia University Press. 1924. 33 pages. Address at the opening session of the College of Physicians and Surgeons, Columbia University, September 26, 1923.

Babies are Safer in England.

Only 69 out of every 1,000 babies born in England and Wales in 1923 died before reaching their first birthday. This is the lowest infant mortality rate recorded in the history of the country. The London rate was only 60. In the United States the provisional infant mortality rate for 1923 was 77, and for New York City, 67.

Virginia Medical Monthly

FOUNDED BY LANDON B. EDWARDS, M. D., APRIL, 1874.
OWNED BY THE MEDICAL SOCIETY OF VIRGINIA.
PUBLISHED BY THE PUBLISHING COMMITTEE.

A. G. BROWN, Jr., M. D., Chairman, Richmond, Va.

B. R. TUCKER, M. D., Richmond, Va.
P. W. HOWLE. M. D., Richmond, Va.
E. L. KENDIG, M. D., Victoria, Va.
A. L. GRAY, M. D., Richmond, Va.

ALEX. G. BROWN, Jr., M. D., Editor.

AGNES V. EDWARDS, Business Manager and Secretary-Treasurer.

All correspondence regarding editorial matters, articles, advertisements, subscription rates, etc., should be addressed to the Journal.

All advertisements are received subject to the approval of the Council on Pharmacy and Chemistry of the American Medical Association.

Subscription Price: $2.00 per annum in advance.
Single Copies 20c.

Vol. 51. AUGUST, 1924 No. 5

Editorial

Angina Pectoris: Relief of the Pain by Surgery.

In London on May 5th last, at the meeting of the Royal College of Physicians, Professor K. F. Wenckebach,[1] of the Medical Clinic, Vienna, delivered a lecture which has attracted international notice, not only in current scientific, but also in lay publications. The subject discussed was "Angina Pectoris and the Possibilities of Its Surgical Relief." Probably little was added to our present knowledge of angina by the data presented. The explanations of the causes of the pain in angina pectoris and the pathology of the disease were dwelled upon in detail. But the latter part of the lecture, which discussed the possibilities of its surgical relief by the section of the pressor nerve of the vagus, supplying the proximal aorta, at once elicited enthusiastic interest and occasioned widespread comment. This was a natural reaction because it appeared to offer a possibility of a new avenue of relief to patients afflicted with a most distressing pain—heart pang.

The professional reader should realize at once that by no stretch of the imagination may it be considered that Professor Wenckebach's suggestion of surgical relief of the pain in any sense serves as a possible cure of the malady for it should be recalled that angina pectoris is essentially a disease and that the pain of angina is a symptom. The section of the nerve transmitting the pain merely blocks the route; it in no way changes the conditions creating the pain.

Physicians and laymen, alike, should quickly comprehend the significance of the suggestion and not permit the thought to gain headway that angina patients may find a cure by the surgical procedure mentioned and discussed by Professor Wenckebach in his recent London lecture.

In 1768 Herberden accurately described a disorder of the breast to which he gave the name Angina Pectoris although Morgagni and Rougnon and Jenner had previously described cases. The illustrious John Hunter died in an attack of angina. He made the remark that his life was in the hands of anyone who might make him angry. Many physicians have suffered from this malady. It is quite common in England and probably more common in America. It is associated with that general pathologic state known as cardio-vascular disease and it appears most frequently in persons of fourth to sixth decade although in young syphilitics, with vascular pathology, one meets it. Rather elderly men have angina more frequently than elderly women. The diagnosis of angina is essential to an understanding of the syndrome. The distress of cardiac asthma, any kind of a pain over the cardiac area, even the alarming discomfort of paroxysmal tachycardia or other heart irregularities should be clearly differentiated and should not be read to mean angina pectoris.

Angina pectoris is distinctly characterized by attacks of pain. Pain is the one symptom, although the heart may subsequently display other symptoms. This pain is influenced by a number of conditions and is associated with other signs, but pain in angina is the one characteristic symptom. Attacks of anginal pain may occur from three general exciting conditions: (1) a full stomach, (2) mental excitement or physical exertion and (3) cold.

The localization of the pain is rarely at the apex, but is usually substernal. The site of the pain is at the manubrium, sometimes at the xiphoid. But the local position of angina pain may at times be above and to the right of the sternum, at the level of the third or fourth rib. The characteristic feature of the pain is its radiating quality. It may radiate from the precordium to the back at a point opposite; it may spread to the left shoulder; it may run

1 British Medical Journal, May 10, 1924, p. 809.

down the left arm on the inside, going as far as the wrist or little finger. The pain may go "north" to the neck covering both sides and reaching the angle of the jaw or scalp. The climax of the attack may be characterized by a general distribution of the pain over the whole chest, involving even the right arm.

At first the pain may be described as merely a pressure, or "heavy weight," associated with an alarming mental state. It may partake of a more severe quality such as "tearing," "piercing," "burning as hot fire," and rarely "stabbing." The degree and duration of the attacks permit of an attempt at classifying angina pectoris: the mildest form, showing substernal tension; mild form, showing pain of moderate severity; and severe form of angina, showing intense pain engrafted on a more fixed and evident organic disease of the heart and blood vessels and associated with apprehension of death and severe pain phenomena.

The onset of this pain is sudden, apparently set-off by some trivial, superficial cause such as excitement, sudden exposure, cold "that takes one's breath away," physical exertion, an overfilled stomach, or gas-distended abdomen. Of course, were heart and blood vessels involved, normal or approaching normal, such trivial conditions as mentioned would not result in the attack. So what are the conditions in the heart and blood vessels which really produce angina pectoris?

Wenckebach begins the discussion of the pain in angina by asking: "What is the constellation of causes, what the pathological anatomy and the pathological physiology of angina pectoris, and how could we explain the attack and its peculiar manifestations?" The subject is argued under three general heads. First, heart failure, or pathological conditions of heart muscle, is put in the balances and weighed. After covering the various points offered heretofore, Wenckebach concludes that purely clinical arguments "speak strongly against the heart itself being the starting point of anginal pain." This position is taken because the anginal pain is rarely associated during the attack by coincident shortness of breath or other evidence of heart failure, although such symptoms may follow upon the loss of the pain or the fading away of the anginal pain.

Again, Wenckebach also discusses coronary disease as the cause of angina pectoris, taking up the three forms of the disease of coronary arteries, namely, (a) embolism or sudden thrombosis, (b) chronic sclerosis or syphilis and (c) vasomotor spasm of coronary system. After taking up various phases of coronary disease as the cause of pain and leaving one rather uncertain as to the conclusions reached, Wenckebach leans to the diseases of the proximal part of the aorta as the cause of angina. He agrees with Clifford Allbutt by saying that he believes Allbutt is on the right track when he says that pathological conditions of the heart muscle and of the coronary arteries become of secondary importance, for nearly always there is also disease of the proximal aorta. While these conditions, he argues, may exist and may be the cause of death in angina, "they can not be regarded as the cause of angina." The pain of angina pectoris, it is argued, arises from the disease and strain of the walls of the aorta. So long as the heart is equal to the task of maintaining increased stress, pain of angina results, but when the heart muscle of the left ventricle fails and the pressure in the proximal aorta declines, pain fades and heart failure signs appear. Every influence which lowers the action of the heart, diminishes its output, allays excitement, releases peripheral vasoconstriction, reduces abdominal tension, helps in bringing the attack to an end, Wenckebach concludes.

It is argued that as the pathological area of the aorta can not be removed, like an aching tooth, it may be well to consider in chronic and recurrent angina cutting the nerve which conveys afferent impulses. The proximal aorta, it is shown in his paper, describing Tschermak's recent experiments, is supplied by the depressor nerve of the vagus. It is confined to the proximal aorta. "Its distribution has never been seen to extend to the heart. Its upper termination is in a group of cells contained in the jugular ganglion of the vagal trunk." A second group, lying close to the depressor group, belongs to fibres of the superior laryngeal nerve. There are numerous communications between the depressor and branches of the cervical sympathetic system described by Tschermak.

There is an anatomical difficulty in this operation. The depressor nerve in man has no "constant recognizable entity." Eppinger

and Hafer have made careful study of the location of the depressor nerve in man, and, as a result of information gained, performed section of the depressor in a severe case of angina in August, 1922. The operation was performed on both sides of the neck and the patient was relieved of both attacks and pain.

Wenckebach says that this operation has been performed in fourteen cases in Vienna. The following results were noted: "The operation was well borne; no complications resulted." Two of the fourteen patients died. The first case that died was given a "double-sided angina resection." The left resection gave perfect results. In the right no depressor was found and the vagus was divided below the point of origin of its inferior laryngeal branch. While the pain disappeared, the patient died suddenly without obvious cause. In the second case, no right depressor was found. A "sympathectomy" was done and rapid heart failure ensued characterized by pulmonary oedema.

The British Medical Journal, of May 10th, closed its editorial comment on "The Aortic Origin of Angina Pectoris" in the following words, which we cite for the benefit of our readers:

"That surgical division of the cervico-thoracic sympathetic containing the sensory nerves of the heart and aorta might relieve the pain of angina was suggested as long ago as 1899 by the physiologist, Francois Franck, but it was not until 1916 that Professor Thomas Jonnesco, of Bucarest, put this into practice by excising the whole of the cervical sympathetic with its three ganglia and also the first thoracic ganglion. Various surgical measures have since been employed in the treatment of angina by Bruning, Coffey and P. K. Brown, Hristide, and Stochelin and Holtz; Danielopolu, indeed, remarks that it is surprising that a certain degree of success appears to have followed all the different methods. The operations are usually carried out on the left side only, though Jonnesco and Hofer have performed a bilateral operation. It must, however, be remembered that in removing the cervico-thoracic sympathetic and its ganglia, or in cutting its trunk, fibres other than the centripetal aortico-cardiac fibres, such as the cardiac accelerators and vaso-constrictor filaments for the pulmonary vessels, are interrupted, and thus dangerous results, such as acute oedema of the lung, are possible. The ideal procedure is therefore to divide all the sensory fibres coming from the heart and aorta, and at the same time to avoid damage to the motor nerves to the heart. Professor Wenckebach has advocated section of what is thought to be the depressor nerve in man, corresponding to the depressor nerve in the rabbit, described in 1886 by Ludwig and Cyon, which is excited when the aortic pressure becomes excessive and thus causes pain. This branch, coming from the superior laryngeal or from the trunk of the vagus has accordingly been divided by Hofer, working with Eppinger, Professor Wenckebach's first assistant, who in April, 1923, reported five cases of angina thus operated upon with much benefit; since then they have carried out this procedure in other cases. There is, however, the drawback that this nerve is not by any means constant in man, and in cases in which it cannot be found Hofer has suggested section of the vagus trunk. Although more details are wanted about the course of the sensory branches from the heart and aorta, these early but encouraging results of operation for angina pectoris prove the value of applied physiology as well as the need for more knowledge."

News Notes

Virginia State Board of Medical Examiners.

At the meeting of the Virginia State Board of Medical Examiners, in Richmond, June 17-20, 1924, eighty-one applicants received certificates to practice in Virginia. They are:

Dr. Randolph L. Anderson ---------- Boston, Mass.
Dr. J. Albert Avrack ---------- Richmond, Va.
Dr. Vincent William Archer ---- Charlottesville, Va.
Dr. William Otis Bailey ---------- Washington, D. C.
Dr. John M. Bailey ---------- Richmond, Va.
Dr. Robert William Bess ---------- Richmond, Va.
Dr. Charles Young Bidgood ---------- Baltimore, Md.
Dr. Ryland Arwood Blakey ---------- Richmond, Va.
Dr. James Lewis Blanton ---------- Tobaccoville, Va.
Dr. Doris C. Boatwright ---------- Jonesville, Va.
Dr. F. N. Bowles ---------- Chester, Va.
Dr. John Mason Bishop ---------- Richmond, Va.
Dr. Louis Christian Brand ---------- Brand, Va.
Dr. Edwin Carter Brandon ---------- Portsmouth, Ohio.
Dr. Boyd Franklin Brown ---------- Richmond, Va.
Dr. T. S. Buckley ---------- Richmond, Va.
Dr. Carl John Carter ---------- Richmond, Va.
Dr. Noland M. Canter ---------- Roanoke, Va.
Dr. Herbert G. Chissell ---------- Petersburg, Va.
Dr. John Randolph Chitwood ---------- Richmond, Va.
Dr. George Todd Colvard ---------- Jersey City, N. J.
Dr. Donald Sneed Daniel ---------- Weldon, N. C.
Dr. David Melvin Davis ---------- Baltimore, Md.
Dr. John Andrew Gardner Davis, Jr., Greenwood, Va.
Dr. David Joseph Dolen ---------- Richmond, Va.
Dr. John Edwin Dougherty ---------- Richmond, Va.
Dr. Clay Welborne Evatt ---------- Richmond, Va.

Dr. Nathan B. Feinberg ----------New York, N. Y.
Dr. Eugene L. Flippin ----------Washington, D. C.
Dr. Henry Thomas Garriss----------Hazelton, Pa.
Dr. Lula Woods Garst ----------Richmond, Va.
Dr. William Edward Geiger ----------Richmond, Va.
Dr. Richard Spencer Gill ----------Petersburg, Va.
Dr. Robert Burwell Groves ----------Lowell, N. C.
Dr. Chester E. Haberlin ----------Richmond, Va.
Dr. Grady O'Ferrell Haynes----------Coeburn, Va.
Dr. Lucy Scott Hill ----------Locust Dale, Va.
Dr. Charles Edward Holderby -------Richmond, Va.
Dr. Claude Gibson Hooten ----------Roanoke, Va.
Dr. Henry Amiss Hornthal ----------Richmond, Va.
Dr. John Richard Howard----------Richmond, Va.
Dr. S. Edwin Hughes, Jr., ----------Richmond, Va.
Dr. J. Tibble Thomas Hundley, Jr.,-Bridgeport, Conn.
Dr. Benjamin Edward Hunt----------Jeffs, Va.
Dr. W. C. Kappes ----------Richmond, Va.
Dr. David Wright Kelly, Jr. ----------Culpeper, Va.
Dr. Raymond DeVan Kimbrough-Charlottesville, Va.
Dr. A. D. Lambeth ----------Newport News, Va.
Dr. Joseph Havanes Luscinian -----Blacksburg, Va.
Dr. William F. Matthews ----------Richmond, Va.
Dr. W. H. McCarty ----------Chatham Hill, Va.
Dr. Randolph McCutcheon ----------Richmond, Va.
Dr. Thomas Francis McDermott -----Richmond, Va.
Dr. William Ambrose McGee --------Richmond, Va.
Dr. Rees Morgan ----------Charlottesville, Va.
Dr. Roy L. Noblin ----------Richmond, Va.
Dr. Arthur Douglas Parker---------New York, N. Y.
Dr. Thomas Gerald Peacock ----------Crewe, Va.
Dr. Daniel Mallory Prince ------Charlottesville, Va.
Dr. S. H. Rivers ----------Charlottesville, Va.
Dr. Hall Holloway Ratcliffe -----Charlottesville, Va.
Dr. William Ernest Riley----------Lynch, Ky.
Dr. Aaron Seldes ----------Richmond, Va.
Dr. Ernest Clay Shull ----------Winchester, Va.
Dr. William Edward Smith ----------Farmville, Va.
Dr. Allen Barry Sloan ----------Petersburg, Va.
Dr. P. D. Stout ----------Bluff City, Tenn.
Dr. D. B. Stuart ----------Richmond, Va.
Dr. Giles Sydnor Terry----------Richmond, Va.
Dr. Thurston Moody Turner ---------Louisville, Ky.
Dr. Albert Cecil Van Reenen --------Richmond, Va.
Dr. C. T. Upchurch ----------Richmond, Va.
Dr. Adrian Xavier Urbanski ---------Richmond, Va.
Dr. H. H. Ware ----------Richmond, Va.
Dr. T. B. Washington ----------Woodford, Va.
Dr. Marion Howell Watson------Charlottesville, Va.
Dr. Rachel Fletcher Weems ----------Ashland, Va.
Dr. F. W. M. White ----------Windsor, N. C.
Dr. James Morehead Whitfield, Jr.---Richmond, Va.
Dr. Pauline Williams ----------Richmond, Va.
Dr. William Plummer Yancey ---------Danville, Va.

A Pleasure in Store for Virginia Doctors.

The success of the Staunton meeting of the Medical Society of Virginia depends not only upon the number of members who attend but also upon their enthusiasm. The Augusta County Medical Association and the friends of these doctors are bending their energies to make this a banner meeting. Let's march upon them in large numbers. Several interesting papers on the attractions of the surrounding country have appeared in our last issues; another is promised for next month. Apart from the scientific interest of these annual meetings, there is nothing so beneficial to a doctor as to lay aside his work for a short space of time and mix with professional friends who come from far and near. They bring back pleasant reminders of college and other days which we do not wish to forget.

Dates for our meeting are October 14, 15, 16 and 17. If you wish to present a paper, send your title to the Society's offices in Richmond. Be sure to be "among those present." Bring your wife with you. She should be interested in the Woman's Auxiliary of the State Society and you both will have a good time.

Vacations of Some Virginia Doctors.

Dr. and Mrs. E. B. Nuckols, of Cumberland, accompanied by their daughter and son, left August 1st, on a motor trip to Virginia Beach, going by way of Petersburg, Suffolk and Norfolk. They expected to spend a ten days' vacation at the beach.

Dr. F. J. Wright, Petersburg, recently returned from a visit to Abingdon, Va.

Dr. and Mrs. Stuart McGuire, Richmond, sailed for Europe on August 1st. They expect to be away about six weeks.

Dr. and Mrs. M. H. Harris and daughter, West Point, recently visited relatives in Louisa County, Va.

Dr. H. L. Segar and several friends, of Warsaw, attended the Democratic convention in New York.

Dr. and Mrs. E. H. Terrell and daughter, of Richmond, spent some time at Princess Anne Hotel, Virginia Beach.

Dr. and Mrs. W. R. Aylett, Newport News, visited Atlantic City, N. J., the middle of July.

Dr. and Mrs. R. H. Wright, of Richmond, left early this month for a visit to relatives in Boston, Mass.

Dr. Robert Preston, Richmond, recently spent sometime with his family at their cottage at Fisher's Island, N. Y.

Dr. and Mrs. R. M. Wiley and family, Salem, were visitors in Norfolk, Va., recently.

Dr. William P. McGuire, Winchester, is home again after a visit with his grandson to Atlantic City, N. J.

Dr. and Mrs. J. R. Adams, Blackstone, took a motor trip through the Valley of Virginia in July, and visited many places of interest in this State.

Dr. and Mrs. H. Wallace Blanton, Richmond, took a motor trip through the New England states and spent a while at Journey's End, Maine.

Dr. and Mrs. Joseph Hume, Norfolk, were recent visitors in Richmond.

Dr. and Mrs. John O. Boyd, Roanoke, recently visited relatives in Winchester, Va.

Dr. and Mrs. Clifton M. Miller and children, Richmond, left August 1st, for their cottage at Old Sweet Springs, where they expect to spend the month of August.

Dr. C. S. Dodd, Petersburg, Va., was a recent visitor in Martinsville, Va.

Dr. and Mrs. H. S. Daniel, returned to their home in Louisa, the middle of July, after a short stay in Richmond.

Dr. and Mrs. Wyndham B. Blanton and children, Richmond, visited Mrs. Blanton's parents in Winchester, Va., last month.

Dr. and Mrs. Charles C. Page, Orange, left the middle of July to spend a month in Canada.

Dr. and Mrs. Thomas F. Gill and sons have returned to their home in Richmond after a vacation spent in the mountains and at the seashore.

Dr. W. Nelson Mercer and his mother, of Richmond, spent a part of July in motoring through the North, and visited among other places, New York City, Albany, Boston, Philadelphia and Atlantic City. Dr. Mercer is now with the National Guard of Virginia on their annual encampment trip.

Dr. Mary Baughman and her mother, of Richmond, are enjoying a motor trip through the Northern States and Canada.

Dr. and Mrs. B. W. Switzer, of Lexington, have been spending some time at Rawley Springs, Va.

Dr. J. A. Riffe has returned to his home in Covington, after a visit to friends in Baltimore, Md.

Dr. E. L. Sutherland, of Charlottesville, recently stopped over in Pulaski, en route to Hillsville, Va., his former home, for a visit.

Dr. and Mrs. T. W. Edmunds and Dr. and Mrs. Julian Robinson, Danville, left the last of July on a motor trip which will take them through the New England States, Canada and in the Great Lakes section. They expected to be away for several weeks.

Dr. H. Taylor Hawkins, Clover, has recently been the guest of his parents in Highland Park, Richmond.

Dr. and Mrs. James Leftwich have returned to their home at Highland Springs, after a motor trip in the South.

Dr. and Mrs. H. Stuart MacLean, son and daughter, Richmond, have been on an extended western trip, visiting many points of interest.

Dr. and Mrs. J. D. Foltz and children have returned to their home in Richmond, after a visit to Tappahannock, Va.

Dr. and Mrs. P. E. Tucker, Buckingham, Va., were recent visitors in Richmond.

Dr. and Mrs. Karl Blackwell and children of Richmond are visiting relatives near Warrenton, Va.

Dr. and Mrs. R. L. Williams, Norfolk, are spending sometime visiting in Texas, and will not return home until early Fall.

Dr. and Mrs. W. H. Higgins have returned to their home in Richmond, after a motor trip through Kentucky.

Dr. and Mrs. Charles V. Carrington, of Richmond, have been visiting friends at Locust Valley, L. I.

Dr. and Mrs. J. V. Jordan, of Covington, left recently on a motor trip and will spend some time at Smith's Falls, Ontario.

Married.

Dr. Ward E. Newcomer, McClellandtown, Pa., and Miss Norma Stuart Johnson, Richmond, June 21. Dr. Newcomer graduated from the Medical College of Virginia, Richmond, this year and received appointment as interne at the Harrisburg General Hospital, Harrisburg, Pa.

Dr. John Randolph Chitwood, Sylvatus, Va., and Miss Dorothy Leonard Lee, Richmond, July 19. Dr. Chitwood graduated from Medical College of Virginia this year and received appointment as an interne at Stuart Circle Hospital, Richmond.

Dr. William Samuel Scott and Miss Mary Powell Wilson, both of Fredericksburg, Va., July 31st.

New Board of Health Appointed.

The new State Board of Health, composed of seven instead of fourteen members, has been appointed by Governor Trinkle. The reduction in size of the Board was one of the many reforms suggested by the Commission on Simplification and Economy and one of the few adopted by the last General Assembly. The new board is composed of Mr. John T. Daniels, of Cape Charles, one year; Dr. H. M. Miles, Norton, two years; Dr. Wm. M. Smith, Berryville, three years; Dr. Guy R. Harrison, Richmond, four years; Dr. W. T. Graham, Richmond, five years; Dr. George B. Lawson, Roanoke, six years; Dr. Lawrence T. Royster, University, seven years. Dr. Miles is the only new member of the board, the other six having served on the board which went out of existence on July 1st.

At a meeting of the new board, held July 29th, Dr. Wm. M. Smith, Berryville, was elected president, and Dr. Guy R. Harrison, Richmond, was elected secretary.

Dr. John William R. Smith,

Who graduated from the University of Virginia, Medical School, in 1900, and who has made his home for sometime at Hillsboro, W. Va., has returned to Virginia and located in Charlottesville.

Dr. James N. Ellis,

Of Atlanta, Ga., formerly of Richmond, Va., recently visited friends and relatives in Buckingham County, Va.

Dr. E. C. Cobb,

Penola, Va., has been elected secretary of the Caroline County Shrine Club. This club is composed of Shriners of Caroline County, most of whom hold their Masonic membership in the Bowling Green Lodge, who have organized this club as a purely social organization.

Dr. Thomas B. Washington,

Who graduated in this year's medical class at the Medical College of Virginia, visited friends in Fredericksburg, Va., en route to Gouverneur Hospital, New York, at which place he received appointment as interne.

Dr. E. L. W. Ferry,

Millers Tavern, Va., was elected a member of the board of directors of the Essex County Fair Association at a meeting held recently at Tappahannock, Va.

Dr. William E. Croxton,

Who has been practicing for some years at King William C. H., Va., has bought a home in West Point, Va., and moved there to practice medicine.

Dr. Claude Lee,

Of the class of '05, University of Virginia, Medical School, recently underwent an operation for appendicitis at St. Andrew's Hospital, Wusih, China, of which he has charge. Dr. Lee returned to his mission work in China last summer, after a furlough spent with relatives and friends in Virginia.

Clinic Held in Covington.

Under the auspices of the Alleghany County Medical Society, Dr. H. Page Mauck, of Richmond, held a clinic for crippled children in Covington, Va., last month. He was assisted by local physicians and a trained nurse.

Virginia Pharmaceutical Association.

At the meeting of this association held recently at Natural Bridge, Va., L. R. Shadwell, Richmond, was elected president; A. L. I. Winne, Richmond, and Miss Maud Lambert, Roanoke, were elected secretary and treasurer, respectively.

An address delivered by the Hon. R. A. Fulwiler, Federal Prohibition Director for Virginia, directed attention to the seemingly unwarranted issuing of liquor prescriptions by some of the physicians of the State, and the following resolutions were unanimously adopted by the organization, as a consequence of the reference to the situation:

WHEREAS it was to the great pleasure and profit of the members of The Virginia Pharmaceutical Association, in convention assembled, to listen to a most instructive address by the Hon. R. A. Fulwiler, Federal Prohibition Director for Virginia, and

WHEREAS, in that address, it was forcefully brought to the attention of the members of the Association that the sole legitimate source of supply of whiskey and other intoxicants for medicinal purposes only is through them as registered pharmacists, and

WHEREAS, it was also forcefully brought out that these intoxicants cannot be supplied to the public save and except on the prescription of a reputable licensed physician given to a patient whom he thus certifies to be in need of same, and solely as a patient of said physician, and

WHEREAS, this places squarely upon the shoulders of the physician, and not upon the pharmacist, the responsibility of saying who is entitled to same under the provisions of the law. Therefore, be it

RESOLVED by The Virginia Pharmaceutical Association in convention assembled that we hereby request the earnest and conscientious co-operation of the physicians of the State to the end that the letter and spirit of the Volstead Act be strictly observed and enforced, and thus let Virginia say to the world that we, upon whom rests the responsibility of supplying these much-sought remedial agents, stand "four square" for a careful and conscientious observance of the provisions of law to the end that abuses shall be stopped. Be it further

RESOLVED, That we hereby offer to the enforcement officers hearty and active co-operation in their efforts to place Virginia on a high plane of law observance, a place she has ever striven to maintain, and be it further

RESOLVED, That these resolutions become a part of the permanent record of our Association, that a copy be sent to the Hon. R. A. Fulwiler, Federal Prohibition Director for Virginia, and that a copy be sent to the secretary of the Medical Society of Virginia.

Dr. R. S. Goodman,

Formerly of Zion, Va., has moved to Charlottesville, Va., for the practice of his profession.

Dr. and Mrs. Thomas A. Lamb,

Dunbar, W. Va., visited relatives in Richmond, on their return from attending the Democratic Convention.

Dr. Francis W. Upshur,

Richmond, announces removal of his offices to 1209 West Franklin Street, this city.

State Board of Health Establishes New Branch Laboratory at Harrisonburg, Virginia.

In accordance with its policy of furnishing, so far as it is able, laboratory service to all sections of the state, the State Board of Health opened, July 1st, a branch laboratory at Harrisonburg, Virginia. This laboratory is being operated jointly with the Rockingham Memorial Hospital and will serve not only as a public health and hospital laboratory but also as a general clinical laboratory for that section.

The undertaking is being supported by funds from the hospital, from the State Board of Health, and from the International Health Board. All work will be done in this branch laboratory that is done at the central laboratory in Richmond except the Wassermann test, but this may be added later.

The laboratory is, at present, in charge of Mr. A. A. Shanks, of the State Laboratory in Richmond, but will later be directed by Miss Louise Story, formerly of the Memorial Hospital and now in the Richmond Laboratory.

The Harrisonburg branch will serve a very valuable purpose for the physicians and people of the Shenandoah Valley and is filling a real and long felt need. This is the second branch to be organized and it is hoped that increased appropriation will make it possible eventually to reach every section of the state.

Children's Memorial Clinic.

A clinic for childen, with the above name, was opened in Richmond on the seventh of August. The clinic will be located at 1001 East Clay Street and will confine its work largely to medical diagnosis and psychiatric diagnosis and guidance. The organization committee was composed of representatives from all the children's welfare agencies of Richmond, including the State and City Departments of Public Welfare, the State Board of Health, the Medical College of Virginia, the Medical Department of the City Schools, the Juvenile and Domestic Relations Court, the McGuire Newton Foundation, the Crippled Children's Hospital, the Associated Charities and the Instructive Visiting Nurses' Association. Children of all ages, races and conditions will be received. Dr. Basil B. Jones, of this city, is to be medical director and head of the department of pediatrics. Other members of the staff will be announced shortly.

The McGuire Newton Foundation, one of the organizations interested in this work, will erect a memorial tablet to the late Dr. McGuire Newton, of Richmond, in the hall of the clinic. The tablet bears the following inscription, which in a way gives the keynote of the institution's purpose:

"In memory of
McGuire Newton, M. D.
1876-1923.
Physician to Children
In gratitude to him, patients, friends and admirers have organized the McGuire Newton Foundation and have co-operated with other agencies in establishing this clinic to perpetuate and enlarge this service to childhood, to which he devoted his life."

Dr. John Bell Williams,

Of the dental faculty of the Medical College of Virginia, has been named by Governor Trinkle as a member of the Board of Visitors of the Medical College of Virginia, to succeed the late Judge George L. Christian. The appointment is for life.

Dr. and Mrs. Carroll A. Davis,

Of Logan, W. Va., last month visited friends in Orange, Va. Dr. Davis formerly lived at Eagle Rock, Va.

Attention—Former Illinois Doctors—Attention!

Will any and all doctors, former residents of Illinois, or descendants of pioneer physicians of the "Illinois country," communicate at once with the Committee on Medical History, Illinois State Medical Society, No. 6244 North Campbell Avenue, Chicago, Illinois.

Under the sponsorship of the Illinois State Medical Society there is in preparation "A History of Medical Practice in the State of Illinois" that must go to the printer at an early date. In order that this volume may be accurate and complete, all possible assistance is asked from every source, as to personal data and experiences, including diaries, photographs and similar documentary mementoes of pioneer Illinois doctors and of progressive phases of medical practice, as well as of achievements in fields other than those of medical science. Prompt return in good condition is promised for anything loaned the committee, the personnel of which is:

O. B. Will, M. D., Peoria, Ill.; C. B. Johnson, M. D., Champaign, Ill.; Carl E. Black, M. D., Jacksonville, Ill.; George A. Dicus, M. D. Streator, Ill.; James A. Hutton, M. D., Chicago, Ill.; and Chas. J. Whalen, M. D., Chicago, Ill., chairman.

The scope of the volume will range from the discovery of Illinois to modern times. Through

this period of over 250 years there is much of thrilling interest to be detailed. Collection of the human interest data can come only from the families or closest friends of the pioneers, many of whom long ago removed to distant sections of the United States. Through the kindness of editors of various medical journals, it is hoped to reach those who may be able to loan valuable material to the compilers who guarantee careful guardianship of anything sent for publication.

Some of the subjects touched will be: Physicians accompanying early explorers; government surgeons and physicians in attendance at the forts; early medicine in Illinois; theories of healing from the days of the Aborigines through the mound-builders; French and English explorers: the ante-boundary days; sporadic settlers; medical attendants for the covered wagon; herb doctors; primitive surgery; medicine and missionaries; migration of pioneer physicians to new territory; the circuit-riding and "saddle-bag" doctors and their burdens, triumphs and perils; pioneers as "utility citizens:" Illinois men in war time—there are four conflicts to be considered since the opening of the Nineteenth Century: Illinois medical men away from medicine, i. e., in industry, in science, in belles-lettres—art, music and literature.

Photographs especially are desired. Also copies of letters, statements of "cures" and "new methods," diaries and the like.

The Inter-State Post-Graduate Assembly,

Directed by the Tri-State District Medical Association, extends a hearty invitation to the physicians of America who are in good standing in their State or Provincial Societies to attend the annual assembly which is to to held at Milwaukee, Wisconsin, October 27-31, five full days of post-graduate work. The program includes the names of many eminent men.

Invitation to American Physicians

This Association is supervising an Inter-State Post-Graduate Clinic Tour to Canada, British Isles and France to start May 18, 1925. Leading teachers and clinicians of Canada and Europe will arrange and conduct clinics and demonstrations in many of the clinic cities. Besides the main tour special tours to practically all the leading centers of Europe will be arranged. Sight-seeing trips to all places of interest in the countries visited will be included in the regular tour.

Cost of tour, including first-class hotels, board, steamship, clinic arrangements and all ordinary traveling expenses, under $1,000.00. The tour is open to physicians in good standing in their State Societies, their families and friends who are not physicians.

For information, write the Managing-Director, William B. Peck, M. D., Freeport, Illinois.

Dr. Robert B. Hiden,

Who graduated from University of Virgina Medical School in 1923 and was instructor in physiology and biochemistry at that school last year, is now at Massachusetts General Hospital, Boston.

Dr. Adam T. Finch,

Chase City, Va., left early in July for St. Louis, Mo., where he is taking a special course in X-ray treatment at the University Hospital and Post-Graduate School.

Dr. P. L. Hill, Jr.,

Of the class of '17, Medical College of Virginia, expected to sail from Vancouver, August 14th, on the Empress of Canada, to resume his mission work in Korea. Dr. Hill has been on a furlough in this country for two years and will be gone this time for seven years. He is connected with the work at Choonchun, Korea.

Dr. Edmund Horgan,

Washington, D. C., sailed the last of July for Europe and will not return home until about the first of October.

Dr. Churchill Robertson,

Salem, Va., after completing a year's internship at Long Island Hospital, Boston, Mass., has accepted the position as physician for the Baptist Orphanage at Salem, Va.

Dr. Allen T. Hawthorne,

Harrisonburg, Va., left the first of July for Baltimore, where he is taking up post-graduate work. Upon completion of his course, Dr. Hawthorne expects to return to Harrisonburg.

Dr. J. W. Walters,

Lynchburg, Va., has been suffering with a fractured arm, which was the result of an automobile accident the latter part of July. He with several others was on his way to attend a meeting of Kiwanians in South Boston, Va., when the car in which they were riding turned turtle near Halifax. The other occupants escaped with bruises.

Dr. William Meredith,

Gouldin, Va., has been named a member of the Hanover County Board of Public Welfare.

Dr. J. C. Darden

Has returned to his home in Salem, Va., after taking post-graduate work in medicine at Johns Hopkins University, Baltimore.

Appointments by Governor.

Dr. R. Bruce James, Danville, Va., has been appointed a member of the board of visitors of the Virginia Military Institute at Lexington, for a period of four years, beginning July 1, 1924.

Dr. Robert H. Courtney, of Richmond, was appointed a member of the Governor's advisory board on mental hygiene. This board examines all prisoners admitted to the penitentiary, classifying them with a view to placing them at the work to which they are best suited.

Hookworm Resurveys in the United States.

The following extract from the 1923 report of the International Health Board of the Rockefeller Foundation, as an evidence of good accomplished, should prove of interest:

"During the years 1910 to 1915, hookworm campaigns were conducted in eleven southern states—Virginia, North Carolina, South Caroline, Georgia, Alabama, Mississippi, Louisiana, Texas, Arkansas, Tennessee, Kentucky. Special investigation was made of the infection rate among rural school children between the ages of 6 and 18 years, as it was early recognized that in this age group the severest infections occur.

"During the years 1920 to 1923, 81 of the 422 counties were resurveyed. In the original surveys of these counties, 89,857 rural school children were examined, of whom 49,471 were infected, giving a rate of 55.1 per cent. In the 1920-1923 surveys 44,090 children were examined, of whom 12,236 were infected, giving a rate of 27.8 per cent, *a reduction since* 1910-1915 *of* 49.5 *per cent.*

"Of the 81 counties above mentioned, 16 in five states—Virginia, North Carolina, South Carolina, Georgia, and Alabama—were resurveyed during 1923. In the original survey of these 16 counties 3,748 children, of 6,331 examined were infected, giving a rate of 59.2 per cent. In the 1923 surveys 2,058 were positive out of 8,598 examined, giving a rate of 23.9 per cent *or a reduction since the original surveys of* 59.6 *per cent.*"

Virginia Baptist Hospital Opened.

The first unit of the Virginia Baptist Hospital, located in Lynchburg, Va., was dedicated on July 10th, and opened for reception of patients on the 12th of the month. Miss M. E. Cowling is superintendent. The hospital has been built and will be provided for out of a fund raised by the Southern Baptist Church. It is located on the Natural Bridge Road just out of the city, but has street car service and all city conveniences. Construction will be started at once of a second unit and a home for nurses.

Doctors Appointed on Committees for Military Defense Day.

Governor Trinkle has appointed several doctors on the civilian committees for the Military Defense Day test to be held throughout Virginia and the whole country on September 12, in connection with the national mobilization demonstration. Some of these are Dr. E. C. Levy, Richmond; Dr. Wm. F. Drewry, Petersburg; Dr. Geo. B. Wood, Emporia; Dr. R. P. Kelly, Lynchburg; and Dr. J. Edward Harris, Berryville.

Dr. T. Welch Dew,

Bumpass, Va., has bought a home in Fredericksburg, Va., and plans to move to that city this Fall.

Judges Named for the Modern Hospital's Prize Essay Competition.

Dr. Haven Emerson, Dr. Michael M. Davis, Jr., of New York, and Dr. Willard C. Rappleye, of New Haven, Conn., have been named as members of the committee of award of The Modern Hospital's prize essay competition on "The Interrelationships of Hospital and Community."

Dr. Haven Emerson is professor of public health and preventable diseases of Columbia University, New York. He was at one time commissioner of health of the City of New York and during the past three or four years has made a number of community hospital and health surveys, notably in Cleveland, Ohio, San Francisco, Cal., and Louisville, Ky.

Dr. Michael M. Davis, Jr., is executive secretary of the Committee on Dispensary Development of the United Hospital Fund of New York. Dr. Davis was for a number of years director of the Boston Dispensary and is the author of numerous books on hospital, dispensary and public health subjects.

Dr. Willard C. Rappleye is superintendent of New Haven Hospital, New Haven, Conn., and professor of hospital administration in the Yale University school of medicine. He was at one time director of hospitals for the University of California and later served as exe-

cutive secretary of the committee on training of hospital executives.

This committee will meet, probably in New York, to consider the essays submitted, following the formal closing of the contest on November 1, 1924.

Registrations for the competition will be received at the Chicago office of The Modern Hospital up to September 15.

Further information may be obtained by addressing The Contest Editor, The Modern Hospital, 22 East Ontario Street, Chicago, Ill.

Dr. D. Lane Elder

Has been re-elected mayor of Hopewell, Va., by unanimous vote of the newly elected council under the city manager form of government.

The Bedford County Medical Society

Held its regular monthly meeting, July 28, at which time Dr. Don Preston Peters, Lynchburg, read an excellent paper on "Differential Diagnoses." This was briefly discussed and several members made reports of clinical cases. Upon completion of the business meeting a banquet was held. Officers of this society are Dr. W. O. McCabe, Thaxton, president; Dr. R. A. Bennett, Bedford, vice-president; Dr. J. A. Rucker, Bedford, secretary-treasurer.

The Southwestern Virginia Medical Society

Will hold its next meeting September 11th and 12th in Marion. The preliminary program includes a clinical session instead of the regular symposium. "Fractures" will be discussed by Dr. J. Coleman Motley, of Abingdon, leader, followed by Dr. Wm. R. Rogers, Bristol; Dr. Roy Hoover, Roanoke; Dr. A. M. Showalter, Cambria; Dr. J. A. Noblin, Radford; Dr. Claude Moore, Roanoke; Dr. W. L. Powell, Roanoke; Dr. W. C. Candill, Pearisburg; and Dr. John M. Ropp, Roanoke. "Obstetrics" will be discussed by Dr. Chas. F. Graham, of Wytheville, leader, followed by Dr. W. R. Cushing, Dublin; Dr. W. W. Chaffin, Pulaski; Dr. R. H. Wooling, Pulaski; Dr. Z. V. Sherrill, Marion; Dr. R. T. Thornhill, Pulaski; Dr. S. T. Yeatts, Floyd; Dr. J. O. Boyd, Roanoke; and Dr. E. M. Chitwood, Wytheville.

Voluntary papers will be read by Drs. W. H. Ribble, Wytheville; J. M. Miller, Crockett; J. O. Boyd, J. T. McKinney, A. P. Jones, and J. D. Willis, of Roanoke; Nat. Copenhaver, Bristol; T. C. Harris, Radford; and R. R. Goad, Hillsville. Dr. Stewart R. Roberts, Atlanta, Ga., as invited guest, will read a paper on "Therapeutics of the Diseases of the Circulation." As this is the annual meeting the president, Dr. S. S. Gale, of Roanoke, will deliver his address and the election of officers will be held. Dr. E. G. Gill, Roanoke, is secretary of the association.

Dr. William B. Meares,

Formerly of Linwood, N. C., of the class of '15, University of Virginia Medical School, has located in Richmond, with offices at 602 Professional Building. He will limit his work to internal medicine and minor surgery. From the time of his graduation until January last, Dr. Meares has been connected with the Panama Canal Health Department.

Dr. W. E. Dickerson,

Of the class of '22, Medical College of Virginia, later serving an internship at Retreat for the Sick, Richmond, has located in Princeton, W. Va., where he is connected with the staff of Memorial Hospital, at that place.

Dr. W. Calhoun Stirling,

Who, for the past four years has been doing genito-urinary surgery in connection with the Lawrence Clinic, at Winston-Salem, N. C., moved to Washington, D. C., the first of this month and has offices at 1720 Q Street, Northwest. He will continue to limit his work to the above named specialty.

Dr. J. N. Barney,

Of Fredericksburg, Va., has been promoted from major to lieutenant-colonel in the medical section of the Officers' Reserve Corps, Eightieth Division, Third Corps Area. Dr. Barney is now in command of Physical Examination Unit No. 12, Third Corps Area, United States Air Service.

Dr. C. R. Anderson,

Winchester, Va., has been named one of the vice-presidents of the newly organized Lions' Club in that city.

A Woman Bit Off Her Nose.

Dr. Stephen Harnsberger, of Warrenton, Va., reports the very unusual case of a married woman living near the Rappahannock County line. While driving to Warrenton in her automobile, she struck an unnoticed depression in the smooth-surfaced road. So suddenly did it happen that her false teeth were forced over her upper gums, severing the nose from a quarter of an inch back of the end of the nose down to the tissues of the right cheek. Very careful work was necessary to get the openings just right. Under wet antiseptic dressings, the parts have healed nicely without

pain or swelling, and it looks as if no noticeable scar will result. People with false teeth should take warning.

Doctors Interested in Fox Hunts.

Dr. F. A. Sinclair, Newport News, has been elected president of the Virginia Fox Hunters' Association, and Dr. J. Frasia Jones, Richmond, treasurer.

American Pediatric Society.

At the meeting of this Society, held in the early summer, Dr. John Ruhrah, Baltimore, was elected president, and Dr. Howard C. Carpenter, Philadelphia, was re-elected secretary.

Dr. Charles E. Dyer,

Jewell Ridge, Va., who is an interested member and officer in the American Legion, delivered the Legion's greeting to the Sons of Confederate Veterans on the occasion of their annual State reunion.

New Superintendent at Winchester Memorial Hospital.

Miss Martha Keating, of Catonsville, Md., has accepted the position as superintendent of Winchester, Va., Memorial Hospital, to succeed Miss Anna MacMillan who resigned, effective September 1st, to take up important work in the South.

The American Association for Medico-Physical Research

Will hold its thirteenth annual convention in the Auditorium Hotel, Chicago, September 24-28, inclusive, under the presidency of Dr. S. Edgar Bond, of Richmond, Ind. Dr. Elnora C. Folkmar, Washington, D. C., is secretary. Over 500 members are expected to be in attendance and the scientific program will be one of unusual interest. Special clinics and exhibits, historical, scientific and commercial exhibits will be so arranged as to form a unique educational demonstration of the development of the rational use of physical methods in therapy.

Correction.

In the July issue of the Virginia Medical Monthly, there appeared on pages 240 and 241 an article by Wilbur M. Bowman, M. D., entitled, "A Note in Reference to the Bile Reaction in Urine." By error his address, affixed to this article, was put Central State Hospital. It should have been Petersburg Hospital, at which place Dr. Bowman is now serving an internship.

Dr. Charles H. Phillips,

Of the class of '16, Medical College of Virginia, who has for several years been professor of pathology at Wake Forest College, School of Medicine, Wake Forest, N. C., has been appointed professor of pathology at the Medical College of Virginia, Richmond. He succeeds Dr. W. H. Cook, who has left to accept a position at the University of Pittsburgh. Dr. Phillips has many friends in this city, having served an internship at Stuart Circle Hospital, Richmond, after his graduation.

The Physicians of Brunswick County, Va.,

Have formed the above named organization, with Dr. W. H. Lewis, of Lawrenceville, president, and Miss Grace B. Mallory, also of Lawrenceville, secretary. The main object of this organization is to prepare and keep a list of delinquents as to physicians' accounts. A list of those who do not pay within a given date is furnished all members on the first of each month. After receiving this, no physician will visit the person or the family of the person until the account has been settled, except in emergency. In such event, the physician in attendance is expected to call attention to the delinquent account and make an effort to have it paid. As soon as payment is made in part or in full, notice is to be given the secretary in order that she may keep an accurate list.

Dr. India Hunt,

Recently connected with Blue Ridge Sanatorium, Charlottesville, Va., is now working with the State Board of Health.

American Institute to Hold Big Exposition of Inventions.

Manufacturers in every American industry will be interested in the Exposition of Inventions to be held, December 8th to 13th inclusive, 1924, in the famous Engineering Societies Building, New York City. The American Institute of the City of New York is handling this display through its Inventors' Section, with behind it an experience of ninety-six years in fostering and portraying American industrial life.

Arrangements for the display of working models or actual devices at the Exposition of Inventions can be arranged through a Committee of the American Institute at 47 West 34th Street, New York City. All proposed displays are subject to approval by the Institute, it being the desire to show only those things of sound worth.

U. S. Civil Service Positions.

The U. S. Civil Service Commission, Washington, D. C., or the secretary of the Board of U. S. Civil Service Examiners at the postoffice or customhouse in any city will furnish full information and application blanks for the following positions:

Applications for junior medical officer (tuberculosis; psychiatry) will be accepted until August 19. Preference will be given to colored eligibles as this is to fill vacancies in the U. S. Veterans' Hospital, Tuskegee, Ala., which has been built for colored patients.

Examinations will be held throughout the country on September 17, for physiotherapy aide and physiotherapy pupil aide, to fill vacancies in the Public Health Service and in the Veterans' Bureau throughout the United States.

Applications will be received for occupational therapy aide and occupational therapy pupil aide until December 30, 1924, to fill vacancies in the Veterans' Bureau.

Doctor Wanted.

Wide practice in prosperous town and good surrounding country. Good roads, railroad, accredited four-year high school, churches, up-to-date drug store, national bank, general stores, hardware and farm machinery stores, and other industries. Property consists of modern ten-room dwelling, barn, garage, and other out-buildings on four town lots. Will sell property and introduce to practice for what property cost me. Reason for selling, taking up hospital work elsewhere. Only one other doctor located here. Address Box 124, Chilhowie, Va.

Guinea Pigs For Sale.

Prices reasonable. Apply to Health Officer, Newport News, Va. (Adv.)

Wanted.

Location on railroad in Virginia, by 1918 graduate, Class A school, who has had postgraduate work and one year hospital work. Doing general practice now. Aged 33 years. Will consider partnership. Can give references. Address No. 349, care this journal. (Adv.)

Obituary

Dr. Alvah Stoakley Hudson,

Health officer of West Point, Va., and a prominent physician and citizen of that section, died suddenly on the evening of June 29th. Dr. Hudson was born in King and Queen County, Va., about forty-five years ago. Upon graduating from Medical College of Virginia in 1906, Dr. Hudson located in West Point. He was a member of the Masonic and Pythian lodges, of the Kiwanis Club, and had been a member of the Medical Society of Virginia since 1907. He is survived by his wife, mother and several sisters and a brother.

Dr. James H. Jones,

Blackstone, Va., died July 16th, in his home at that place. He was born in Brunswick County, Va., in 1838 and studied medicine at the Medical College of Virginia. He graduated in 1859, after which he served as acting assistant surgeon in the Confederate States' Army. He had been a member of the Medical Society of Virginia since 1871 and an honorary member since 1906. He is survived by nine children.

Dr. James White Cummings,

Of Abingdon, Va., died July 9th, at the age of sixty-six years. He graduated from the Medical Department of the University of the City of New York in 1879. Dr. Cummings had been a member of the Medical Society of Virginia since 1889.

Dr. Richard Henry Stuart, Jr.,

Of Colonial Beach, Va., died July 19th, after a short illness. He was forty-one years of age and had graduated in medicine at the University of Virginia in 1907. He was a son of Dr. and Mrs. R. H. Stuart, of Stratford. His wife and a number of relatives survive him.

Mrs. George W. Brown,

Wife of Dr. George W. Brown, superintendent of Eastern State Hospital, Williamsburg, Va., died at her home in that place, June 30th, her death being due to bronchopneumonia following influenza.

Dr. Robert Williamson Lovett,

Of Boston, Mass., died suddenly at Liverpool, England, July 2nd. Dr. Lovett was widely known as orthopedic surgeon, teacher and author. He was sixty-four years of age and a graduate of Harvard University Medical School, in which university he had served for a number of years as professor of orthopedic surgery.

Invest with Safety in the Capital City

CAPITAL CITY of the Greatest Nation in the World. Meeting place of the country's foremost men and leading minds. The dynamo which generates national power. Seat of the Federal Government, the biggest business in America.

Washington, primarily the Nation's Capital, is an international metropolis — different from any other city in America. Diplomats from the Old World lend a touch of European color. Envoys from the Far East add a tone of the Orient. From practically every civilized nation on the globe come ambassadors, ministers plenipotentiary, high dignitaries with attaches and aides; envoys,diplomats, past masters in affairs of state.

"World hope," said the late President Harding, "is centered in this Capital City."

The stability of Washington, now the home of half a million people, and growing steadily with the growth of the Nation, makes it a unique investment center, especially in the field of real estate first mortgage bonds; for the strength and permanence of the city are reflected in its real estate values.

You can invest your savings at 6½% or more in First Mortgage Bonds that are strongly secured by improved, income-producing property in the Nation's Capital. You have the further advantage of dealing with a house which has a first mortgage record of *no loss to any investor in 51 years.*

Send today for a free copy of our booklet, "Half a Century of Investment Safety in the Nation's Capital." It will tell you how conveniently you can invest by mail in our $100, $500, $1,000 and $5,000 First Mortgage Bonds, and also how you can get 6½% or more on your monthly savings. Mail the coupon NOW.

THE F. H. SMITH COMPANY, Washington, D. C.

Please send me a copy of your free booklet, "Half a Century of Investment Safety in the Nation's Capital"

47

Name _____

Address _____

No Loss to Any Investor in 51 Years

The F. H. SMITH CO.

Founded 1873

SMITH BUILDING - WASHINGTON, D. C.

"THE DOCTORS' SHOPPING PLACE"

¶THE BERRY STORE is favored by Physicians.

¶As they are usually men of unusual discrimination we are flattered.

Hanan Shoes

O. N. Berry Co.
ESTABLISHED 1879
RICHMOND, VA.

Dunlap Hats

Capital $1,000,000 Surplus Earned $1,000,000

ESTABLISHED 1892

To act as Executor, Guardian and Trustee
$25,000,000
of investments held in Trust

Confidential Interviews Invited.

Say, Doctor---

you can talk to us entirely confidentially about your affairs. Come by and let us answer your questions and advise you about your will.

This bank has friends all over Virginia, many of whom have already seen us about their wills.

Write or phone for a special engagement with Mr. G. Jeter Jones, Vice-President.

MERCHANTS NATIONAL BANK
11th & Main Streets. Richmond, Va.

"Safest For Trusts"

Virginia Medical Monthly

OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

Fifty-fifth Annual Meeting, Staunton, October 14-17, 1924.

Vol. 51. No. 6.
WHOLE No. 867.

RICHMOND, VA., SEPTEMBER, 1924

$2.00 A YEAR
20 CENTS A COPY

CONTENTS.

ORIGINAL COMMUNICATIONS:

Massive Doses of Digitalis in Pneumonia. William A. Shepperd, M. D., Richmond, Va. and Bernhard Steinberg, M. D., Boston. Mass. ---- 327

A Survey of Some of the Principal Germicides Employed in the Male Urethra. Thomas V. Williamson, M. D., Norfolk, Va. ---- 329

Gastro-Intestinal and Other Disturbances Associated with Fissures and Hemorrhoids. G. Reese Satterlee, M. D., New York, N. Y. ---- 334

A Modern Treatment of Esophageal Stricture Due to Lye Burn. A. A. Burke, M. D., Norfolk, Va. ---- 337

The Shame of Modern Medicine: Getting our Post-Graduate Education in Pharmacology and Therapeutics From the Propaganda of the Proprietary Drug Houses. Frederick R. Taylor, B. S., M. D., High Point, N. C. 338

The Use of Lactic Acid Milk in Infant Feeding. Thomas D. Jones, M. D., Richmond, Va. ---- 341

Ectopic Pregnancy. H. W. Phillips. M. D., Norfolk, Va. ---- 344

An Epidemic of Pneumococcic Infection at the Eastern State Hospital. Ernest H. Alderman, M. D., Williamsburg, Va. ---- 348

Perforating Gastric Ulcer with Report of Cases. S. B. Moore, M. D., F. A. C. S., Alexandria, Va. ---- 352

Some Practical Points in Malaria Control. J. H. Crouch, Williamsburg, Va. ---- 354

Report of Two Cases of Focal Infection. Geo. T. Klipstein, M. D., Alexandria, Va. ---- 357

Some Reflections Upon Certain Phases of Preventive Medicine in the Growth and Development of Child-Hood. J. H. Hiden, M. D., Pungoteague, Va. ---- 359

Epidemiological Studies of Typhoid Fever in Virginia During 1923. George C. Payne, M. D., Richmond, Va. and Henry P. Carr, M. D., Richmond, Va. ---- 363

A Preliminary Report on the Use of the Schick Test on 1,482 Children and the Immunization of 1,011 Children by Three Separate Doses of the Toxine-Anti-Toxine Mixture—one C.C. Lethal Dose. H. M. Wallace, M. D., Greenville, Va. ---- 365

Acquired Characters and Heredity. Casper L. Redfield, Chicago, Ill. ---- 366

Psychoanalysis—A Criticism and Evaluation. Grace Bryan Rollins, A. B., Richmond, Va. ---- 368

CORRESPONDENCE ---- 373

MISCELLANEOUS:

The Coming Meeting of the Medical Society of Virginia. Charles Minor Blackford, M. D., Staunton, Va. ---- 374

ANALYSES, SELECTIONS, ETC. ---- 376

PROCEEDINGS OF SOCIETIES ---- 378

THE TRUTH ABOUT MEDICINE ---- 378

BOOK ANNOUNCEMENTS ---- 380

EDITORIAL ---- 381

NEWS NOTES ---- 383

OBITUARY ---- 391

INDEX OF ADVERTISERS—Advertising Page 5.
(For Society Announcements, see page 32).

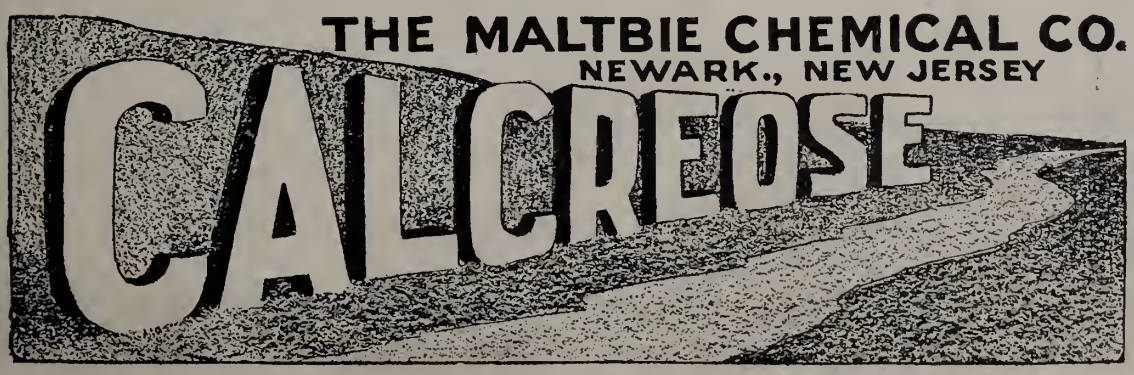
General Medication in Tuberculosis

"**CALCIUM**—Certain it is, that patients, especially children, often improve with increased amounts of calcium in their food or as a medicament."

"**CREOSOTE**—It seems to be true that many patients have improved appetite under its stimulant or irritant action in the stomach. It may also for a time improve digestion, and the patient often adds weight. During this period there is frequently a lessening of the bronchitis, and, therefore, a decreased expectoration, and with this decrease of the secondary (streptococcic) infection, there is likely to be less fever and, therefore, less sweating." A. M. A.: **Handbook of Therapy**, Ed. 6, p. 201.

CALCREOSE (calcium creosotate) is a mixture containing in a loose chemical combination approximately equal weights of creosote and lime. It has the pharmacologic activity of creosote but apparently does not have any untoward effect on the stomach.

Sample of Tablets on Request.



PREVENTING NUTRITIONAL DISTURBANCES IN INFANTS

By far the largest majority of children that are brought to hospitals suffering from severe nutritional disturbances are victims of serious errors made by parents who failed to consult their physicians, and who attempted to feed their babies without a doctor's advice.

If all babies were under a competent physician's care, infant mortality would be surprisingly reduced.

MEAD JOHNSON AND COMPANY realize that the *physician is the only one capable of feeding babies successfully.* MEAD'S INFANT DIET MATERIALS, therefore, have no directions on the package, the mother gets her feeding instructions *only* from her doctor and follows his advice throughout the feeding period.

MEAD'S DEXTRI-MALTOSE, Fresh Cow's Milk and Water will give gratifying results in feeding a large majority of bottle babies.

MEAD'S CASEC AND MEAD'S POWDERED PROTEIN MILK are splendid for fermentative diarrhoeas.

Sample and literature sent at the physician's request.

THE MEAD JOHNSON POLICY

Mead's Infant Diet Materials are advertised only to physicians. No feeding directions accompanying trade packages. Information in regard to feeding is supplied to the mother by written instructions from her doctor, who changes the feedings from time to time to meet the nutritional requirements of the growing infant. Literature furnished only to physicians.

Mead Johnson & Company

Evansville, Indiana, U. S. A.

MAKERS OF INFANT DIET MATERIALS EXCLUSIVELY

Virginia Medical Monthly

Official Organ of the Medical Society of Virginia

Vol. 51, No. 6.
WHOLE No. 867.

RICHMOND, VA., SEPTEMBER, 1924

20 CENTS A COPY
$2.00 A YEAR

Original Communications

MASSIVE DOSES OF DIGITALIS IN PNEUMONIA.

By WILLIAM A. SHEPHERD, M. D., Richmond, Va.
Associate in Medicine, Medical College of Virginia,
and
BERNHARD STEINBERG, M. D., Boston, Mass.

Petresco,[1] in 1890, was one of the first to advocate the use of massive doses of digitalis in pneumonia. This radical departure from the accepted standards was met with but little approval by some of contemporaries, who asserted that large doses of digitalis produce toxic effects, influencing adversely the course of the disease, and, secondly, that digitalis in any dose has no beneficial therapeutic action in pneumonia. Apparently this attitude was not universal, because we find many European clinicians, among them Filk, Hetsch, Desourteaux and Monjain, and American clinics adopted this method of digitalis treatment. Those clinicians who have employed massive doses concurred in its beneficial effect in the progress, subjective symptoms and mortality in pneumonia.

Antony,[2] in 1892, reported results of this treatment in the Petresco clinic. They treated 1,031 pneumonia patients with only a mortality of 1.2 per cent. Although using, in severe cases, from 8 to 10 grams of the infusion of digitalis, up to 75 to 150 grams every hour, no cases of intoxication were observed. Beneficial effects were noticed 48, 36 and 24 hours after the first dose in lowering of temperature, resolution of the pneumonic process and alleviation of the subjective symptoms. In this country Bergen[3] and Hershey[4] were the most pronounced advocates. Bergen states that there is a prompt and permanent temperature decline, lessening of respiratory embarrassment and pulmonary pain, with decrease of cough. He advocates massive doses especially early in the disease, in the stage of congestion, basing the rationale of this treatment on physiological and pathological grounds.

The rapid strides made within the last few decades, especially in serum and vaccine treatment, obscured the methods employed by the older clinicians. With all due respect to the pneumococcus serums, we believe that some of the older remedies which have stood the test of clinical experience have a place in the therapeutic armamentarium.

The present scheme of digitalizing the heart with large doses of digitalis over a short time has demonstrated that there is little or no danger of a toxic effect. Recently, Linten[5] concluded that massive doses of digitalis increase the muscular efficiency of the heart, produce diuresis, loss of edema, and decrease the size of the liver. The employment of digitalis has been primarily to digitalize the heart in the eventuality of a failing cardiac function. However, repeated investigations have thrown some doubt on the toxicity of the pneumococcus toxins on the heart.[6] In fact, in an average case of pneumonia the cardiac muscle is not at all or little affected. Therefore, the statement so often made of whipping an already exhausted and failing heart does not hold true. Our method of digitalizing the heart is not primarily to combat possible cardiac failure, but to increase its muscular efficiency in pumping against a partly functionless lung, thus reducing its congestion, removing pneumonic products and bringing a greater number of leucocytes into the field of action.

The present communication is based on the study made during the "pneumonia season" of December, January and February, 1923, at the Saint Phillip Hospital, Richmond, Va. The hospital is devoted entirely to colored patients. The susceptibility of the colored race to pneumonia, and the toll the disease takes from its ranks, is well known. The patients, as a rule, do not come under observation of a physician until late in the disease when the pneumonic process has spread from one lobe to another, or involved both sides. It was not uncommon to find a patient with the lobe resolving, and another, on the same or other side, in the stage of engorgement. We dealt, therefore, in many instances with extreme conditions in lobar pneumonia where one part was undergoing resolution while another portion was actively

diseased, and both were incapable of function. A good percentage of cases were further complicated by a coincident luetic infection which was far from enhancing the resistance to a new and virulent microorganism. We had an opportunity to observe these patients in the various stages of pneumonia under treatment of massive doses of digitalis and to compare the observations and results obtained with those where small doses or no digitalis was used. We were impressed by our good results and small mortality.

Upon admission of the patient and with diagnosis of pneumonia made, we immediately gave one drachm of the standardized tincture of digitalis, U. S. P., by mouth, and repeated the dose every four hours until 24 to 36 hours after defervescence occurred. This was our general plan which would be slightly modified, depending upon the individual case. We seldom resorted to subcutaneous or intravenous injections of any of the digitalis preparations. In very severe cases one drachm every three hours for 24 hours would be given. The total amount of digitalis given varied between eleven and twenty-six drachms, and the average time within which the drug was administered was 5 days.

An interesting observation from the study of our charts was made in regard to the ventricular rate which showed no change that was not consistent with the temperature curve. In other words, digitalis did not influence the rate, but increased the muscular power of the heart. This phenomenon was watched with the aid of the stethoscope and occasional cardiograms. Linten (*loco citato*) states that the improvement from digitalis is not due to the change in the ventricular rate, but probably to the increased muscular efficiency.

The physical signs showed rapid transitions and improvement, while the subjective symptoms were of mild character. The crisis in the average case arrived on the fifth day and there were no recrudescence or complications. One patient who had a toxic psychosis cleared up in two days. The greater percentage of our cases had a pneumococcus type II or IV with streptococcus and were, therefore, not very amenable to serum treatment.

We attempted to tabulate our cases in percentage ratios of deaths and recoveries, but we soon appreciated that it would not be a true representation of our results. Probably no two patients presented the same composite factors as to virility of the infection, the type of microorganism, the degree of pulmonary involvement, length of illness prior to admission, other coexisting diseases, age, etc. If we were to divide them into groups, we probably would have had as many divisions as we had patients. The inaccuracy of such a tabulation was made apparent to us. We have hence resorted to a general survey of our cases and are expressing herein the results of our observations, having taken into consideration each individual case.

We had not one fatality in our pneumonia cases where our method of treatment was given full play, with other things being equal. However, statistically we were charged with two deaths. The first patient was admitted at four o'clock in the afternoon and died at six o'clock the following morning. The second patient died suddenly on the fourth day after his admission. On entrance he had a temperature of 104.5 F., pulse 140, with the lower left and right lobes involved; total leucocytes 9,000, polys. 82 per cent. On the fourth day, the patient was seized suddenly with a paroxysm of dyspnea and was dead within a few minutes. The former patient was practically moribund on admission. The latter, with a poor resistance and severe infection as evidenced by the low total of leucocytes and high percentage of polys., died suddenly, probably from an intercurrent affection.

To recapitulate, we feel that massive doses of digitalis influence favorably the course of the disease, ameliorate the subjective and objective symptoms and conduce to the recovery of probably otherwise fatal cases.

We take at random some illustrative cases; the first two, being more interesting, are described in more detail.

Case 1.—E. V., colored, age 24. Onset of symptoms December 27th; admitted December 29th, with a temperature of 105.2° F., pain in the left chest and hemoptysis. Lower and upper left lobes were flat to percussion and bronchial breathing was demonstrated. Total white blood count—38,500, polys. 80 per cent. Blood culture sterile, Wassermann four plus. Sputum showed pneumococcus type four and streptococcus. Three days later the temperature went down to 100° and after 48 hours reached 99.2° F. and remained at the base line. The pulse rate on admission was 138; it vacillated with the temperature, going down to 80 with its decline and remaining there. She received nineteen and one-half drachms of the tincture

of digitalis during a period of seven days. She made a rapid convalescence and was discharged as cured.

Case 2.—J. H., colored, age 23. Onset of symptoms December 25th; admitted December 31st, with a temperature of 105.4° F., pulse 130, chills, severe cough, involuntary urination and delirium. The lower and middle right lobes were flat to percussion with bronchial breathing: the lower left lobe was dull and gave a bronchovesicular breathing. Total white count—16,600, polys. 72. Blood culture sterile, Wassermann four plus. Sputum showed pneumococcus type four and streptococcus. On January 2nd, the temperature dropped down to 99.2° F., pulse to 78, and remained on about that level. Her mental symptoms cleared up. She received eleven drachms of the tincture of digitalis in three days. She made a good convalescence and was discharged as cured.

Case 3.—S. Y., age 19, left lower lobe involved: temperature 102°—104°; pulse 125 throughout; leucocyte count of 1,200; ploys. 93 per cent. He received twenty-six drachms in seven days and made a splendid recovery.

Case 4.—O. R., age 22, middle and right lower lobes involved, temperature 104°, pulse 110: leucocytes 18,000. He received nine drachms of digitalis in four days. He had a concurrent syphilitic infection. He made a good recovery.

Case 5.—G. S., age 22, left lower and upper lobes involved; temperature 103.5° F., pulse 110: leucocytes 28,000, polys. 86 per cent. She received twenty-three drachms in seven days. She was discharged after a rapid convalescence.

Case 6.—M. J., age 32, middle and right upper lobes involved; temperature 105°, pulse 130. She received fifteen drachms of digitalis in six days, had her crisis on the fifth day and made a rapid recovery.

Case 7.—R. H., age 22, lower left lobe involved; temperature 104°, pulse 140; leucocytes 35,800. He received thirteeen drachms in three and a half days. He made a rapid recovery.

Conclusions

1. Digitalis may be used in massive doses without much danger of a toxemia.

2. Massive doses of digitalis are helpful in pneumonia and favorably modify the course of the disease.

3. Digitalis apparently increases the muscular efficiency of the heart without great effect on the ventricular rate, as seen in the apparently normal hearts of pneumonia.

Bibliography.

(1) Petresco, Therapeutische Monatschrifte, Berlin, Feb., 1890.
(2) Antony, M., Bull. Soc. Med. d. hop. d., Paris. 1892, z. s., ix, 818.
(3) Bergen, L. M., New York Med. Jour., 1892, lvii, 322.
(4) Hershey, Medical News, Phila., Aug. 1891.
(5) Linten, D., Archives of Internal Medicine, Feb., 1924, 251.
(6) Tice's Practice of Medicine, Vol. iii, 63.

A SURVEY OF SOME OF THE PRINCIPAL GERMICIDES EMPLOYED IN THE MALE URETHRA.

By THOMAS V. WILLIAMSON, M. D., Norfolk, Virginia.
Staff Urologist to Protestant Hospital; Consulting Urologist U. S. Veteran's Bureau.

While preparing a recent article for the *Journal of Urology*, on "The Resistance or Fastness of the Gonococcus to Germicides,"[1] the author made a rather exhaustive study of the main chemicals employed as gonococcicides and thought that the profession might find a concise discussion of them both profitable and interesting. This would seem to be especially true with those practitioners who are only occasionally called into this field and who might wish to have the mind's eye cleared after the rather dazzling and immature publicity given some of the newer and more recent preparations.

Ever since the discovery of the gonococcus by Neisser in 1879, which was soon followed by a truer conception of its pathology, the rationale of treatment has had for its aim the following objects: (a) the restriction of the infection to a limited, superficial area; (b) the eradication of the gonococcus as quickly as possible with a minimum of damage to living tissue; and (c) the prevention of secondary infections on the site of the original implantation. We would be tempted to class any drug which could fulfil these requirements an ideal gonococcicide.

It is then in point to survey the properties sought after in the mythical ideal gonococcicide. As Frazier has pointed out,[2] the fact that an infinite variety of organic and inorganic preparations are being and have been tried out for the purpose of combating the gonococcus proves incontrovertibly that a suitable remedial agent has not yet been found which will uniformly relieve the pathology caused by that organism. Time has shown that the startling preliminary reports of some

of them have been but meteoric flashes on the therapeutic horizon. Candor and experience compel us to admit that the ideal has yet to appear. It is well worth while, however, to set down the requirements which the ideal must meet so that we may compare the agents employed at present with them.

This solution should be (a) toxic to the gonococcus, (b) non-irritating to human tissue, (c) penetrating to living tissue, (d) devoid of the property of precipitating albumen, (e) competent to dissolve pus and mucus, (f) possessed of the ability to promote a flow of serum from the infected surface, and (g) capable of stimulating the tissues to a quick return to normal after the gonococcus has been eliminated. This latter requirement will, of course, guard against secondary infections.

The foremost element of consideration in selecting a drug for use within the urethra should be that it is toxic to the gonococcus in a dilution which is well borne by the tissues of that structure. It is of importance then to know the killing power of the solutions we use. To determine this killing power, Swartz and Davis have worked out an ingenious scheme by which they arrive at what they term a "factor." This "factor" is obtained by dividing the concentration in which a drug will kill the gonococcus in the test tube in twenty minutes by the concentration in which it may be used with safety in the urethra. By means of this "factor," a comparative knowledge of the toxicity to the gonococcus of various drugs at our disposal may be gained.

BACTERICIDAL VALUE OF DRUGS AGAINST THE GONOCOCCUS IN WEAK SERUM

Drug	Strength Injectable In Urethra	Killing Strength Twenty Minutes	Therapeutic Factor 20 Minutes	Killing Strength 5 Minutes	Therapeutic Factor 5 Minutes
Meroxyl	1:200	1:80,000	400	1:40,000	200
Pot. Merc. Iodide	1:1,000	1:40,000	40		
Mercurophen	1:4,000	1:40,000	10		
Mercurochrome	1:100	1:16,000	160	1:4,000	40
Acriflavine	1:1,000	1:5,000	5		
Chlorazene	1:400	1:3,200	8		
Pota sium permanganate	1:2,000	1:2,000	1		
Argyrol	10%	1:800	80		
Cargentos	10%	1:800	80		
Silvol	10%	1:400	40		
Protargol	2%	1:400	8		
Phenol	2%	1:200	4		
Boric Acid		2 % fails			
Zinc Sulphate		1 % fails			

The Flavine Dye Group

The outstanding representative of this group is acriflavine. When it was first introduced in this country by Harrell and Davis,[3] it bade fair to become the foremost preparation in the treatment of gonorrhea. To the very great disappointment of the profession, it has by no means lived up to the splendid future expected of it. In fact, time has shown that its use is questionable.

That acriflavine possesses a high killing power toward the gonococcus is undoubted. By the Swartz and Davis method of computation, it has 600 times the strength of protargol in this respect. A desideratum in eradicating the gonococcus is the production of active phagocytosis. The author has noticed in the examination of hundreds of specimens, that acriflavine will inhibit this reactive nature process. It is not unusual to observe, after several injections of the dye, that the vast majority of organisms, which on the initial examination were intra-cellular, are now extra-cellular. It certainly does not stimulate phagocytosis. The reverse appears to be true. From this, it would seem that the drug relies entirely on its killing power *per se* for results.

Acriflavine is not as consistent a performer in the urethra as it was at first thought to be. It has proven to be far from reliable and uniform in its action. The deleterious after-effects seem to outweigh all the good it may accomplish. It is highly irritating in many instances. It has the much desired faculty of deep and rapid penetration of the urethral tissues, but it seems to impregnate them to such an extent with dye that they can not throw off the irritating effect of the drug. It produces an induration and hardening of the urethra which can not possibly be a beneficial happening. It devitalizes the living tissues so that they do not carry on the process of regeneration and repair. A chemical urethritis is frequently

set up while a mucinoid, quassi-purulent discharge of stubborn nature will often develop. It seems, also, to possess the regrettable faculty of producing stricture formation. This may be multiple and extensive. These contra-indications to its use are sufficient to utterly condemn it. In the opinion of the author, the newer preparation of neutral acriflavine has nothing to recommend it over the older form of the drug.

The Mercury Dye Group

The principal exponent is mercurochrome. It has even greater killing power than acriflavine. The strongest points which have been set forth in its favor are:

(1) It is comparatively non-irritating.

(2) It is quickly and deeply diffusible into living tissue.

(3) It is a non-toxic to the patient.

(4) It is highly toxic to the gonococcus.

Of all the recent additions to the therapeutic armamentarium this drug is the most promising. Its usefulness is not confined to the treatment of gonorrhea. In fact, its greatest value seems to lie in other fields. Employed as wet dressing or in a five or ten per cent ointment form it is splendid for cleaning up old wounds, impetigo (observation from use with author's children), ulcers and chancroids. Using a five per cent solution as a wet dressing, the author has unquestionably aborted two cases of incipient erysipelas. It vies with silver nitrate in lavage of the renal pelvis. It performs beautifully in infected bladders and is excellent for flushing the seminal vesicles through the vas deferens. Good results are obtained with instillations of the drug in chronic urethritis.

The bi-chloride and oxy-cyanide of mercury have, up to this time, been chiefly relied upon to prevent secondary infections in the urethra following gonorrhea. Mercurochrome is more acceptable to the patient than either of these and may replace them both in this respect. This fact has not been fully determined.

The author has done complete circumcisions in gonorrheal phimosis cases instead of the usual dorsal slit and, by using a one per cent solution of mercurochrome as a dressing, has obtained routine primary union without infection.

Eye, ear, nose and throat specialists are gravitating to the drug and report excellent results from its use, both in acute and chronic infections in their field. But they find it so highly irritating in some instances that its continued use is contra-indicated in those susceptible individuals. Land[4] has noticed that those patients who seem to be most intolerant to mercurochrome belong to the blond type. This intolerance is rather unusual, however, and it does not interfere with the routine use of the drug in ear and throat work.

For the routine treatment of acute and subacute gonorrhea, mercurochrome is inferior to potassium permanganate and probably to the synthetic silver derivatives also.

Young[5], in his fair, analytical, conservative preliminary report on the drug, records 100 cases of acute gonorrhea in which the gonococcus disappeared in an average time of eighteen days. He states that he has not found the drug vastly superior to other gonococcicides and that, in a few of the infections, it seemed to be inferior to some of the other preparations.

The writer finds two objections to it in this class of patients. (a) Its bactericidal effect is fugacious. In mercurochrome, we find the quality of tissue penetration developed to a greater extent than in any other preparation at our disposal. The pink color may be noticed in the expressed secretions from the prostate and vesicles days after the drug has been instilled into the posterior urethra. This does not mean, however, that the solution has maintained its sterilizing property all this time or that the drug is immutable when the human tissues serve as a repository. The writer believes that the staining quality of the drug outlasts, by far, its sterilizing quality. This is the reason for the belief. To be really efficacious in controlling urethral discharge and bacterial multiplication, mercurochrome should be used several times in each twenty-four hours. A quite mild solution injected four or five times a day serves a better purpose still. Should only one injection be used, the discharge is held in check but a few hours, immediately following the application. Then the discharge will begin to increase again; but it will be stained and easily detected, dirty red, while gonococci, whose multiplication seemed to be inhibited shortly following the treatment, will reappear in great numbers. Thus, the staining quality is still in evidence while the killing power seems wanting. It is difficult to conceive otherwise, than that the drug maintains its coloring peculiarity after the killing power is neutralized or rendered inert. The

color index is not a reliable killing index. To maintain a permanent killing effect, the drug must be used at such short intervals that it may prove quite irritating.

(b) The second objection is directed toward the prolonged or continuous use of mercurochrome in the urethra. As has been said before, the dye penetrates the tissues quickly and deeply. This should assure a deep killing action, which is of course, to be desired. But this very property, if the drug is applied to the urethra over an extensive period, seems to act as a devitalizer to the tissues and then there occurs an injurious chemical reaction similar to that observed with acriflavine. Perhaps it may be that all dye germicides possess a common drawback in this respect. It is highly advisable to keep the patient under close surveillance during continuous urethral medication with mercurochrome.

The writer has not found mercurochrome more uniformly irritating to the urethra than any other chemical of high killing potentiality. It is not contra-indicated in acute conditions, if its effect is closely observed. The hematuria, strangury and tenesmus of hyperacute posterior urethritis may be, at times, amazingly and almost instantaneously relieved by one treatment with it.

Summing up the drug, I should say that it is inferior to potassium permanganate and the silver synthetics in the routine treatment of acute and subacute gonorrhea; but that it is probably the most generally useful of all preparations when the various pathology, encountered in urology, is broadly considered.

Potassium Permanganate

Potassium permanganate continues to hold the premier position as the most consistent and reliable gonococcicide. It has stood the test of time better than any other chemical. Why its effect in Neisserian urethritis is so beneficial is not clearly understood. At first, it was thought that rapid oxidation within the urethral canal liberated a sufficient quantity of oxygen to impair the vitality of the pathogerm. The gonococcus is anaerobic, i. e., it will not live in the presence of oxygen. This belief was discarded when it was shown that the urethra could be inflated with oxygen in the pure state without the organism, growing there, being discommoded.

The killing power as a germicide is not responsible for its effect for the simple reason that its bactericidal property is the weakest of all. When factored by the Swartz and Davis table, this property, in the solution strength employed, is almost nil.

When the irrigation method first came into vogue, a concentration of the drug as low as 1-500 was advocated. In this concentration, it was truly irritating and patently astringent. According to Gabritchevsky, strong solutions are negatively chemiotactic while weak solutions are positively chemiotactic to leucocytes. Whatever the reason for it, experience has taught that decidedly better effects are obtained with weak solutions, so that at present solutions ranging in strength from 1-5,000 to 1-10,000 are preferred. In moments of unthinking exasperation, when we run across a perverse, recalcitrant infection, we have perhaps been tempted to give the gonococcus hell with strong solutions. Nothing could be more detrimental to the patient than to yield to this impulse.

Thus we see that neither oxidation, astringent action nor bactericidal power is the quotient which produces results. Nevertheless, potassium permanganate is highly inhibitory to the activity of the organism. It is probable that, if the men who treat gonorrhea were limited to the choice of one drug, the majority would select permanganate.

The universally approved method of employing the chemical is by hot, copious, dilute irrigations. The lavage serves to flush out the pus and mucus which collect in the urinary passage, thus acting as a medium of artificial drainage. The drug coming in contact with the mucosa induces a transient, fugacious oedema, while the heat of the solution promotes a salutary hyperemia. This cleansing, by liberating the outlets from impediment, permits the escape of inflammatory products from the deeper urethral structures.

We concede that these qualities of potassium permanganate constitute themselves staunch allies to nature in her effort to throw off the abhorrent infection. But this does not entirely satisfy the mind as to the intransient antagonism of the drug to the gonococcus. Frazier styles its bactericidal action as an "unknown quotient" and lets the matter rest there. The combinaton of the action of the drug, plus the effect of the copious, cleansing irrigation, recommends itself as the most acceptable and uniformly efficacious method of treating the dis-

ease—empyrical, if you please, but effective none the less.

Zinc Permanganate

Dilute irrigations in strength of 1-8,000 are quite useful as alternates to potassium irrigations when the gonococcus develops an undue resistance to the latter solution.

Oxy-Cyanide of Mercury

Solutions of oxy-cyanide of mercury in strength of 1-8,000 appear to be the best weapon with which to combat secondary infections. They are quite valuable in the very late stage of gonorrhea and are not intensely disagreeable to the patient. Care must be exercised to employ quite dilute solutions.

Silver Nitrate

This is a cruel drug. The writer knows of no way in which the required strength may be employed which will eliminate the irritative quality. It is highly astringent and will coagulate superficial albumen. For this reason, it is supposed to have only a relatively superficial action. Polite scepticism may be expressed regarding this. The results following the application of silver nitrate in pyelonephritis and in provocative therapy to the urethra and prostate would indicate that the penetration is considerable. The chemical is of decided value in drying up the sodden mucosa of chronic urethritis and in hastening a return of the tissues to normal.

Organic Silver Compounds

Like their doughty parent, these synthetic derivatives are powerfully astringent and coagulate superficial albumen. They have been employed more extensively as prophylactics than any other class of drugs. Their use is advocated in the early stages of the disease when the gonococcus is superficial and easily accessible. They cause a pronounced local hyperemia and promote a free exudation of serum which encourages active phagocytosis.

Requirements of rational treatment contraindicate their use after the disease has established itself on the grounds that they do not penetrate as the gonococcus penetrates, are astringent, precipitate proteins and coagulate the superficial exudates, thus interfering with natural drainage. But, the treatment of gonorrhea is not altogether based on rationale. Experience teaches that it is not always prudent to do this. We find that the recorded results of many practitioners justify the use of such organic silver preparations as argyrol. protargol, cargentos, silvol and albargin in the later as well as in the early stages of gonorrhea. Examination, at autopsy, of kidney tissue after pyelography with argyrol shows that this substance does quite noticeably penetrate the living tissue. While no claim has ever been made that they are as penetrative and diffusible as the chemical dyes, we are not altogether justified, as experience has shown, in condemning their use because, theoretically, they are non-penetrating. They have accomplished altogether too much good for a prudent man to do this.

This brief survey touches upon the main classes of remedial agents employed today in the treatment of gonorrhea. In one form or another they constitute the base of anti-gonorrheal therapy. The action of none of them is uniform either at the beginning of treatment or later on in the disease. The truth of the matter is that this disease is everlastingly perverse and variable. Infections, which evidence practically parallel clinical symptoms when subjected to exactly the same treatment, will by no means respond alike. There is no gainsaying the statement that each case devolves itself into a separate clinical entity which demands individual attention. In no other way may good results be expected.

The writer has advanced the contention[1] that the gonococcus becomes fast or resistant to germicides employed locally. This fastness may develop to a degree in which the application of the drug is worse than useless. A shift to different drugs will doubtless bring the infection under control again.

Syphilographers recognize a proclivity of the spirocheta pallidum to become highly resistant or fast to either mercury or arsenic when either is or both are injected over a considerable period. For this reason the alternate use of the two is advocated.

We read of cases of gonorrhea which "hang fire"[6] or cases which do beautifully under a certain drug for eight or ten days and then run wild.[7] This has been the experience of every practitioner who treats any number of these cases. We can not always attribute this happening to the failure of the patient to live up to his treatment regimen for, in many instances, he has not ceased to comply strictly with instructions. There is food for serious

thought here. No explanation serves to answer the situation question so fully as that the fault lies neither with the strength nor purity of the solution used nor with a laxity to treatment rules on the part of the patient; but to a defensive ability, inherent to the gonococcus, which enables it to build up a resistance or fastness potential enough to render the killing power of the drug impotent. A prompt shift to another germicide will catch the organism off guard and perhaps be fatal to it. To the writer, the most important element of rational treatment would seem to be that the practitioner should be primarily alert for symptoms of the development of this untoward resistance to germicides and then continue to batter the gonococcus with chemicals against which it has not had time to establish a defense.

REFERENCES.

1. Williamson, Thomas V. "Indications for Individual Treatment of Gonorrhea. With Special Reference to the Resistance or Fastness of the Gonococcus to Germicides." Journal of Urology, Sept., 1923.
2. Frazier, A. Reith. "A Survey of the Treatment of Acute Gonorrhea in the Male." Journal of Urology, Feb., 1922.
3. Harrell, B. E. and Davis, E. G. "Acriflavine in the Treatment of Gonorrhea. An Experimental and Clinical Study." Journal of Urology August, 1918.
4. Land, Everett A., Norfolk, Va. Personal Communication.
5. Young, Hugh H., White, Edwin C., Swartz, Earnest O. "Further Clinical Studies on the Use of Mercurochrome as a General Germicide." Journal of Urology, Nov., 1922.
6. Lees. Journal of Urology, Vol. VII., No. 2, p. 99, Feb., 1922.
7. Keys' Urology. p. 228. D. Appleton & Co. 1921.

Since writing this article, I have run across several acute and distressing case reminders that the frequent, continuous, unsupervised use of mercurochrome within the urethra may play havoc with that structure. I notice that Dr. Davis has risen up in defense of the wholesale condemnation of acriflavine. (*Journal of Urology*, January, 1924, pp. 37-38). Since treating his original series of cases at the time he introduced the chemical into this country for the treatment of gonorrhea, he finds that instead of the 1-1,000 solution in distilled water, it is better to use a 1-8,000 solution in normal saline. In this dilution he asserts that acriflavine will probably prove to be the drug of choice in the treatment of acute anterior gonorrheal urethritis. I sincerely trust that he is right. He possesses keen judgment and is an astute observer. I hope, too that I am wrong; but I am very firmly of the opinion that any germicidal dye used continuously within the urethra, at the short intervals demanded in gonorrheal therapy, may prove to be a devitalizing, cicatricial curse. It is certainly incumbent upon the urologist to be keenly observant of the after effects of these dyes so that we may soon know what to expect from their use.

501-507 *Flat Iron Building.*

GASTRO-INTESTINAL AND OTHER DISTURBANCES ASSOCIATED WITH FISSURES AND HEMORRHOIDS.*

By G. REESE SATTERLEE, M. D., New York, N. Y.

My reasons for selecting this subject were not because of anything new but because of the frequent slips in diagnosis, resulting largely from the physician neglecting the examination of the rectum as a routine procedure. Our teachers in surgery said the same thing. Drs. Robert F. Weir and William T. Bull frequently emphasized this point. We, their students, are among the first to neglect this advice. It is a very simple procedure and occupies as little time in examination as almost any other locality in the body. If in all cases of chronic intestinal invalidism, the mouth and rectum alone were examined and proper treatment of these two parts of the body instituted, it is safe so say that further search in a large percentage of instances would be unnecessary. The frequent absence of symptoms referable to the rectum, the fear of rectal operation and sometimes a sense of shame or reticence which may create a shyness of the patient for examination of this region of the body; these three factors from the patient's standpoint may account for omitting the rectal examination.

Hemorrhoids may cause trouble in various ways; first, by direct irritation giving discomfort, fullness, itching and at times bleeding and pain. The pain is most often due to a fissure. Second, by reflex disturbances through the gastro-intestinal tract notably constipation, flatulence, distention, nausea and at times vomiting. Third, by absorption of bacterial products from infected areas in the crypts or deeper tissues of the rectum. Absorption of these bacterial products may alone cause systemic disorders similar to those from infected tonsils. This condition may occur without local rectal symptoms just as infected tonsils may occur without local irritation. These cases of proctitis are very frequently associated with foci of infection in other parts of the body especially in the mouth such as infected tonsils and teeth. In women it is often associated with cervicitis. Proctitis is often present with other foci in the gastro-intestinal tract, such as ulcers, cholecystitis, chronic appendicitis, colitis, etc.

The subjective symptoms of rectal lesions are extremely interesting and often difficult to

*Presented before The American Gastroenterological Association, Atlantic City. May, 1924.

explain. They are lassitude, nausea, somnolence, vague fears, indefinite pains and numerous nervous phenomena,—the so-called neurasthenia; or even mild psychosis. Some of these symptoms can be attributed to the absorption of septic products and others to mechanical irritation. When the patient suffers from absorption of septic foci, there is present a toxemia rather than a bacteriemia. Whatever the explanation of the symptoms in focal infection is, the fact remains that the symptoms subside when the foci are removed. Local or referred pain from hemorrhoids or from fissures is another important factor in explaining nervous phenomena.

Case No. 4296 illustrates the amount of nervous depression and irritability due largely to a small rectal lesion, slight hemorrhoids and proctitis of a limited extent. The case also demonstrates the very frequent concomitance of other focal infections in the body and the necessity of complete removal of all foci.

Objective Sysmptoms: Here probably we have reflex disturbances principally, but they may be also toxic from focal infection or secondary to the constipation or other abdominal conditions. Some of the symptoms of the patients here reported are:—gnawing sensation in epigastrium, flatulence with irritations, coated tongue. See case 5114 (Hemorrhoids, tight sphincter, infected teeth). Not infrequently the symptomatology resembles closely that of duodenal or peripyloric ulcer. The physical signs closely follow the classic symptoms of ulcer in this region. The symptoms however are usually intermittent when the lesion is extragastric. Another example illustrating mistaken diagnosis is the following case seen during the annual meeting of the American Medical Association at St. Louis in 1922. (No serial office number).

Severe vomiting with abdominal cramps, flatulence with or without distention are characteristic symptoms of disturbance of small intestine function due frequently to rectal irritation. Cases 5173 and 5084 are illustrative of this type. It is difficult to select patients with simple uncomplicated hemorrhoids or fissures, as experience shows there are nearly always some other pathological lesions.

Comparative Anatomical Considerations: Constipation with hemorrhoids or fissures may be explained on the theory of interference with Keith's neuro-muscular sphincters. An irritable focus at any one of these nodal points —as in the anal sphincter region—may send impulses through the splanchnic nerves, which communicate with the remaining sphincters in the large and small intestine and thus block peristalsis. This may be followed by atony of the intestinal wall. The connection between the centres namely (a) anal, (b) pelvic colon and rectal, (c) transverse colon, (d) ileocecal, (e) duodeno-jejunal function, (f) duodenal and, perhaps, (g) the cardiac sphincter can be sometimes demonstrated by radiographic examination of cases with rectal lesions. These anatomical structural lesions are in keeping with the symptomatology.

Referred pain is described by Head.[1] "When a painful stimulus is applied to a part of low sensibility in close central connection with a part of much greater sensibility, the pain is referred to the latter rather than to the former, although the stimulus actually arose there."

As Hurst[2] says, the viscera are insensitive, but pain may arise from peritoneal irritations and from tension on the fibres of the muscular coat of the alimentary canal. All pain must be referred on account of the scantiness of the afferent fibres in the viscera and their defective power of localizing internal sensations.[3]

The segmental arrangement of the primitive vertebrate still persists in the skin (dermatomes) and muscles (myotomes).

The rectum and colon are directly connected with the inferior mesenteric ganglion which in turn is connected with the 11th and 12th dorsal and 1st and 2nd lumbar spinal centres. The stomach and small intestine are connected through the solar plexus with the 11th and 12th dorsal spinal centres. Thus, there is intimate connection of the rectum, colon, small intestine and stomach through the sympathetic system.

Case Histories

Case No. 4296. Female. Age 46. *Diagnosis*: Dental infection, chronic maxillary sinusitis, hemorrhoids, proctitis, infected tonsils, nasal obstruction. *Symptoms*: Principally disturbances of the nervous system, depression, irritability, nervousness, some abdominal pain and headache. *Treatment*: First removal of dental infection and curetting of both antra. Later hemorrhoidectomy and removal of infected crypts. This was followed in six months' time by tonsillectomy (very slight infection), and submucous resection. *Result*: Abdominal pain subsided and much relief from nervous symptomatology. These re

sults could be immediately traced to the rectal operation.

Case.—Physician from Texas. (No serial number). *Symptoms*: Epigastric pain, nausea, indigestion, gas and constipation. Patient had been studied in Texas previous to my consultation. Radiographic studies showed a spasm of pylorus with some irregularity in the duodenal cap. He had had several consultations with well known physicians present at the American Medical Association meeting in St. Louis. The diagnosis had been variously called duodenal ulcer, cholecystitis or appendicitis. No examination of the rectum had been made. On questioning the patient about rectum condition, he acknowledged sadly that he had a very bad rectum but had not cared to disclose it. Examination of rectum showed a very extensive hemorrhoidal condition with fissures so severe that digital examination would have been cruel. *Treatment*: Hemorrhoidectomy in his home town resulted in a complete relief of symptoms.

Case No. 5173. Female. Age 27. *Diagnosis*: Infected cervix, hemorrhoids. *Symptoms*: Nervous, apprehensive, irritable, poor sleep, no energy. Bilious attacks with vomiting as prominent feature. Much gas, constipation, backache. X-ray; terminal iliac stasis. Previous appendectomy. *Treatment*: Hemorrhoidectomy. Cervix enucleation. *Results*: Good. Abdominal section avoided.

Case No. 5084. Female. Age 38. *Diagnosis*: Migraine (inveterate headaches), constipation, infected teeth, infected tonsils, infected cervix, hemorrhoids and fissures. *Symptoms*: Attacks of extremely severe headache, vomiting, vertigo, palpitation. No local rectal symptoms. *Treatment*: Hemorrhoidectomy and posterior section of sphincters with other more serious operations, resection of colon, tonsillectomy, dental extraction, enucleation of cervix. *Results*: Very satisfactory. Constipation cured.

Case No. 5114. Male. Age 31. *Diagnosis*: Hemorrhoids, tight sphincter, infected teeth. *Symptoms*: Gnawing sensation in stomach, gas, coated tongue, dizziness. *Advised*: Hemorrhoidectomy. No action.

Case No. 4038. Female. Age 37. *Diagnosis*: Fissures, hemorrhoids, former enucleation of cervix and tonsillectomy. *Symptoms*: Abdominal pain and rigidity on right lower quadrant, headaches and bilious attacks for fourteen years, vomiting and severe pain. *Treatment*: Hemorrhoidectomy followed by improvement.

Case No. 4583. Female. Age 41. *Diagnosis*: Hemorrhoids, infected cervix with cysts, infected teeth. *Symptoms*: Constipation, rectal pain, malaise and depression. *Treatment*: Hemorrhoidectomy and enucleation of cervix and removal of all foci. *Result*: Complete recovery.

Case No. 5378. Male. Age 72. *Diagnosis*: Hemorrhoids, duodenal ulcer, prolapse of rectum. *Symptoms*: Indigestion thirty years, gastric-acidity with soda habit. Epigastric pain. Constipation. Prolapse of rectum. *Treatment*: Operation 1918, posterior gastroenterostomy for duodenal ulcer. August, 1923, hemorrhoidectomy, sphinctotomy. At that time symptoms were sluggish digestion, precordial distress, irritability, gas and constipation. *Result*: Relief of symptoms.

Case No. 5182. Male. Age 60. *Diagnosis*: Internal and external hemorrhoids, tertiary syphilis. *Symptoms*: Burning sensation in intestine, much flatulence, severe constipation, mass in rectum, painful urination, bad dreams, excessive saliva. Examination showed severe internal hemorrhoids which protrude and in danger of strangulation. *Advised*: Operation and declined.

Case No. 5042. Female. Age —. *Diagnosis*: Hemorrhoids, perirectal inflammation. Also pericolitis membranitis, infected teeth, chronic maxillary sinusitis and osteomyelitis. *Symptoms*: Constipation, gas, headaches. Hemorrhoids strong contributing factors. *Treatment*: Hemorrhoidectomy and sphinctotomy. *Results*: Much improved.

Case No. 5450. Male. Age 25. *Diagnosis*: Neurasthenia, hemorrhoids, impacted wisdom tooth, nasal obstruction. *Symptoms*: largely mental. Haziness, dizziness, drowsiness, depression and exhaustion. Low blood pressure. Spastic constipation originating in rectal sigmoid region as shown by radiograph. *Treatment*: Removal of impacted tooth. Hemorrhoidectomy and sphinctotomy. *Result*: Improvement.

Case No. 4086. Male. Age 27. *Diagnosis*: Hemorrhoids and fissures. Proctitis. Previous appendectomy. *Symptoms*: Bilious attacks, headaches during attacks, constipation. Pain in rectum. Examination of stomach contents was normal. *Treatment*: Hemorrhoidectomy, sphinctotomy, excision of crypts. *Result*: Complete recovery.

The following is a report on the roentgenological studies by Dr. Redford K. Johnson: The X-ray findings in diseases of the rectum and anal canal are as yet distinctly secondary in importance to the actual physical demonstration of the lesion by means of the proctoscope, and it is doubtful whether the priority of the latter method ever will be challenged seriously by the roentgenologist. However, the many cases which come to the roentgenologist without having had preliminary rectal examinations should serve to put him on guard, to the end that he may avoid the common error of rendering, on the one hand, a negative diagnosis where actual gastro-intestinal pathology is present, and, on the other hand, a positive diagnosis of a lesion which either does not exist or is secondary to a lesion which he has not discovered. The most frequent sequela of rectal pathology, benign or otherwise, is constipation, and to the roentgenologist this appears as a total colon stasis of the recto-sigmoid type. The simple lesions, such as hemorrhoids or anal fissures, seldom produce local X-ray manifestations of interpretive value, but they are the frequent cause of many remote and at times obscure signs which, while subject to accurate interpretation, are sometimes ignored. These signs include total colon stasis together with spasm of the various sphincters, notably the anal and recto-sigmoid. Spasm of the ileocolic sphincter is probably less frequent but, when present, may result in the occurrence of severe epigastric symptomatology. Moreover, the ileac stasis caused primarily by spasm is usually aided and abetted by the colon stasis, so that in the end we may be confronted with such constant and severe epigastric symptomatology as to make us feel certain that we are dealing with a lesion of the appendix, duodenum or stomach. Such cases as these are the ones which usually come first to the roentgenologist, and, unless he resists the temptation to make the obvious diagnosis as suggested by the symptoms, without properly correlating and interpreting his X-ray *facts*, the patient's abdomen is likely to be opened, and failure, if not disaster, will be the result.

Conclusions

1. Rectal disease is frequently present when unsuspected because of absence of local symptoms.

2. General systemic conditions may be caused or aggravated by hemorrhoids and fissures.

3. The symptomatology is often obscure.

4. Hemorrhoids and fissures are usually accompanied by other lesions, especially focal infections in the mouth.

5. Necessity of rectal examinations as routine procedures and proper interpretation and treatment of even small rectal lesions.

References.

(1) Head H.: Brain, 1896. Vol. XIX, p. 153.
(2) Hurst, A. F.: "The Sensibility of the Alimentary Canal," Oxford Medical Publications, 1911.
(3) W. Langdon Brown: "The Sympathetic Nervous System in Disease," London, 1920.

9 *East 40th Street.*

A MODERN TREATMENT OF ESOPHAGEAL STRICTURE DUE TO LYE BURN.*

By A. A. BURKE, M. D., Norfolk, Va.

Until a very recent date when we encountered a case of esophageal stricture due to lye burn we have felt practically at a loss to know what to do for it. Every method adopted was unsatisfactory and my experience, together with that of others in this vicinity, has been that death has resulted eventually in all cases. With the advent of the bronchoscope and the esophagoscope we have been able to accomplish many things which, heretofore, have been impossible.

The method which I adopted in three cases of esophageal stricture was the procedure of using retrograde esophageal bougies. What is stated regarding one case pertains to all three, as the history, general condition and treatment were similar.

History

A child, age two years, swallowed lye about two weeks prior to admission to hospital. For the last two or three days the mother had noticed that the child had been unable to retain any solid food, and frequently was unable to retain liquids. Sometimes the food was vomited immediately after it was swallowed, and then, again, it remained in the esophagus for from five to fifteen minutes before it was vomited. There had been a gradual loss of weight.

Treatment

An effort was made to pass the smallest esophageal bougie, but without success. The esophagoscope was then used, and by direct method of esophagoscopy the stricture was di-

*Read before the Seaboard Medical Society, Newport News, Va., December, 1923.

lated enough to allow the smallest bougie to pass. After the bougie was passed through the stricture the procedure was then as follows: A gastrostomy was done by a general surgeon, who tied a string on the bougie. This string was pulled back through the stricture into and out of the mouth. This now left a string, one end of which was at the gastrostomy wound, and the other end at the mouth. The next step was to tie the smallest retrograde esophageal bougie, which had a looped string on each end. This bougie was in turn tied to another bougie of slightly larger size, and so on, until size 24 or 26 had been drawn through the gastrostomy wound and out of the mouth. The gastrostomy wound was left open for a week. After 24 hours the esophageal bougies were passed through the mouth every day for two weeks, then every other day for a month, and then twice a week for six months.

There may be some criticism of the rapid dilatation of the stricture, but in the three cases which I have had, there has been no indication that this method should not be adopted, as all three cases recovered and are taking nourishment without any regurgitation of food.

The interval which has elapsed since the cases were operated upon has been a year in one case, and eight months in the other two.

Flat Iron Building.

THE SHAME OF MODERN MEDICINE: GETTING OUR POST-GRADUATE EDUCATION IN PHARMACOLOGY AND THERAPEUTICS FROM THE PROPAGANDA OF THE PROPRIETARY DRUG HOUSES.

A Plea for a More General Study of the Fundamental Principles of These Sciences by the Members of the Medical Profession.*

By FREDERICK R. TAYLOR, B. S., M. D., High Point, N. C.

I wish to take for the text of this paper a passage from Osler's chapter on The Treatment of Disease in the *Oxford Medicine*, Vol. I, pp. 702-3. It runs as follows:

"Each generation has its therapeutic vagaries, the outcome, as a rule, of attempts to put prematurely into practice theoretical conceptions of disease. *As members of a free profession we are expected to do our own thinking;* and yet the literature that comes to us daily indicates a thralldom not less dangerous than the polypharmacy from which we are escaping. I allude to the specious and seductive reports sent out by the pharmaceutical houses, large and small. We owe a deep debt to the manufacturing pharmacist, who has given us pleasant and potent medicines in the place of nauseous and weak mixtures; and such firms as Parke, Davis and Co., of the United States, and Burroughs and Wellcome, of England, have been pioneers in the science of pharmacology. But even the best are not guiltless of exploiting in the profession the products of a pseudoscience."

Osler then goes on to give three items in which the manufacturing drug houses have gone too far; first, in pushing organotherapy beyond a sound scientific basis; second, in overpraising their products; and third, in usurping the functions of the teachers of pharmacology in the schools. He closes his paragraph with these significant words:

"For years the profession has been exploited in this way, until the evil has become unbearable, and *we need as active a crusade against pseudoscience in the profesion as has been waged of late against the use of quack medicines by the public.* We have been altogether too submissive, and have gradually allowed those who should be our willing helpers, to dictate terms and play the role of masters. Far too large a section of the treatment of disease is today controlled by the big manufacturing pharmacists, who have enslaved us in a plausible pseudoscience. The remedy is obvious: Give our students a first hand acquaintance with disease, and give them a thorough practical knowledge of the great drugs, and we will send out independent, clear-headed, cautious practitioners who will do their own thinking and be no longer at the mercy of a meretricious literature which has sapped our independence."

Who are, or ought to be, our students? *Every single one of us!*

A rather amusing incident occurred to me in 1919. I had graduated in medicine some six years previously. I was sitting in a reception room shared by Dr. D. A. Stanton and myself, reading a book. A man came in to see Dr. Stanton, who happened to be out at the time, so he sat down to wait, and something like the following dialogue ensued:

*Read before the Section on Chemistry, Materia Medica, and Therapeutics of the Medical Society of the State of North Carolina, Raleigh, April 15th, 1924.

Man, rather patronizingly, "You are a medical student?"

Answer, "Yes, Sir."

Man, "Reading medicine in Dr. Stanton's office, I suppose?"

A. "Yes, Sir."

The conversation then drifted into other channels. In a few moments another physician came in and spoke to me in such a way that it was obvious to the man with whom I had been conversing that I too was practicing medicine. He then remarked, "Oh, are you a doctor?"

A. "Yes, Sir."

Man, "But I thought you said that you were a medical student!"

A. "I did, Sir, for I am, and I intend to remain one as long as I practice medicine."

At this point Dr. Stanton came in and the conversation ended.

Dr. Alfred Stengel has put this same idea into a forceful simile. He said that a man who gets a splendid undergraduate medical training and goes into practice and ceases to study is just like a man who deposits a large sum of money in the bank and keeps drawing it out without ever depositing any more. Some day he will find himself bankrupt. The physician's education is his capital, and he cannot afford to become intellectually bankrupt.

The routine of a busy practice makes any study difficult, and all of us unavoidably miss a lot of good things, but there is a special danger in failing to keep in touch with the fundamental advances in pharmacology and therapeutics, and that is, that we shall be swept away by the confusing mass of propaganda, good, bad and indifferent, and, as Osler says, become enslaved thereby.

How is this brought about? In a number of ways. In the first place, by the operation of the psychological principle of the summation of stimuli. Let me illustrate. We are walking in the business district of a great city. A newsboy cries his paper. We do not want a paper, as we are too busy to read it, and we are not feeling in a particularly philanthropic mood towards newsboys at that moment. We do not buy. We walk ten blocks and encounter ten newsboys. We buy from the tenth, simply because the summation of stimuli to buy has reached the point where it has broken down our resistance. So it is only too often with regard to the propaganda of the proprietary houses. Daily detail men plus a daily flood of literature in the mails, make the continual dropping of water that wears away stones. This insidious but powerful influence can be offset only by a sturdy intellectual independence based on the power of straight, hard thinking, which is in turn founded on a positive constructive study of the work of the masters of pharmacology and therapeutics. Such intellectual independence must be preserved at all cost, if we are to make real progress and live up to the best traditions of our profession.

A second factor that makes us the easy victims of the drug houses is their adoption of short catchy trade names for their products. It is so easy to remember and prescribe a single catchy word. The product may in some cases do the patient good, but will it not often do the doctor harm? We all, including myself, use some of these products, but is there not danger in a catchy name? How often have we heard physicians of standing and ability suggest certain proprietary drugs for patients, and we have asked, "What is in that preparation?" and the reply has been, "Oh, I don't know, it's a thing that I've found gives relief in these cases." Is not this empiricism run riot? Where has the doctor's intellectual independence gone? Where is the intelligent appreciation and understanding of the working of cause and effect? Empiricism is necessary and valuable where our knowledge is too incomplete to explain phenomena, but the true scientific practitioner is ever eager to know the hidden causes of things, and accepts nothing blindly when he can find adequate reasons for the faith that is in him.

Of course, I realize that any idea may be pushed to an extreme. There is some truth in defining an educated man as a man who has forgotten a great deal. The only thing is, he should not forget too much, especially in his own chosen field of endeavor. The doctor in question may have investigated the ingredients of the preparation, and satisfied himself that it is a rational mixture. He need not remember all the detailed amounts of flavoring material, vehicle, etc., in it, but he should know the amount and nature of the potent drugs in it, the compatibility or incompatibility of its different ingredients, its simplicity or complexity, etc.

Let us look at a few examples of some rather remarkable preparations. One widely prescribed mixture is said to contain the following drugs: alcohol, heroin hydrochlorid, tinc-

ture of euphorbia pilulifera, syrup of wild lettuce, tincture of cocillana, fluid extract of squill, fluid extract of senega, antimony and potassium tartrate, cascarin, and menthol. I wonder if there is a physician here who would for a moment consider deliberately specifying in detail all these drugs in a single prescription, yet I dare not ask how many of us there are who have never ordered just these same drugs all in one prescription under the catchy and widely advertised name of syrup of cocillana compound! The *fact* that *it relieves cough in many patients* does not alter the *fact* that *this is a shotgun mixture of the first magitude.* We can get results with almost any potent drug in sufficient dosage by prescribing it mixed with all the ingredients of an eight course dinner every three hours, but because we *can* do so is no reason why we *should* do so!

I am not objecting to a real, ethical proprietary that is in itself a rational mixture. A mixture put up in palatable, permanent, inexpensive form such as we would order compounded by the pharmacist if we did not have the proprietary, is often a useful thing. I can see no objection to prescribing, for example, a ready prepared tablet containing a combination of acetylsalicylic acid, acetphenetidin, and citrated caffein to a patient whom I wish to have this combination of drugs, rather than to needlessly take the time of a busy pharmacist to put up these drugs in capsules or some extemporaneous mixture. I agree with Osler that we *do* owe a very real debt to the manufacturing pharmacist. Some of our most potent drugs, e. g. epinephrin, have been developed in the great research laboratories of our manufacturing drug houses. I am objecting to the proprietary *evil*, not the proprietary *good.*

I wonder who can tell the action of *all* the following drugs: thuja occidentalis, pichi, saw palmetto berries, triticum repens, and hyoscyamus? The last named drug is familiar enough, and known to be potent, saw palmetto may have a diuretic action, but what about the other three? Yet they are all said to be present in cysto-sedative, which our pharmacists tell me is widely prescribed by physicians. Again the magic of a catch name!

The Harrison Act has greatly lessened the sale of habit forming drugs, proprietary and otherwise, but there is still some room for improvement in this respect. Wampole's hypnobromic compound is, I am told, extensively prescribed by physicians, and is also dispensed without prescription. Each *ounce* is said to contain

Cannabis indica	1 grain
Potassium bromid	48 grains
Hyoscyamus	1 grain
Chloral hydrate	96 grains

A Vermont physician wrote that he had at one time three young women who were addicts to this preparation as a result of thoughtless prescriptions from physicians. (*Cf. Journ. A. M. A.* Feb. 7, 1920). I am informed that this preparation is often dispensed in eight ounce bottles containing 768 grains of hydrated chloral! What reputable physician would thoughtfully precribe, or druggist dispense, over seven hundred gains of hydrated chloral to one person at one time, except under very extraordinary circustances?

So we could go on indefinitely. The shotgun hypophosphite mixtures, the many complex, so-called uterine sedative mixtures, the thousand and one tonics and sedatives for all human ills, all kinds of preparations, shotgun, popgun, blowgun, shrapnel, high explosive, and even gas, and, above all, in this day and time, the endocrinomania that seems to be running amuck, almost without let or hindrance, though occasionally the profession is saved from utter disgrace by the voice of a Harvey Cushing crying in the wilderness.

It is of little use to anathematize the proprietary drug houses for these evils. In the last analysis, whose fault is it that they get by with some of the stuff that they do? *Ours*, of course! Talk to any detail man about the complexity, the uselessness, the dangers, or the incompatible ingredients of his preparations, and he always has one painful comeback: "But, Doctor, ninety per cent of the doctors prescribe it!" I can only sorrowfully say that I know it, admit that it is our fault, and read him the passage from Osler quoted at the beginning of this paper.

What about that much abused organization, the Council on Pharmacy and Chemistry of the American Medical Association? I do not believe that it is infallible any more than any other human institution, but I do consider it invaluable. If we would only familiarize ourselves more thoroughly with its aims and achievements, we would appreciate it more. Like all reform organizations, whenever it makes a mistake, that mistake is heralded far and wide by a multitude, whereas its real

value is often totally unrecognized. No practitioner can investigate for himself, by pharmacologic research, all the new drugs that come to his notice. The Council is a competent board of experts that charts the unknown therapeutic seas for us, and we should appreciate and use it more. If we are touring the country and find a mistake in a road map, that does not cause us to throw it away and try to make our own map, yet that seems to be the position of some with regard to the Council's endorsement or disapproval of proprietary drugs. They feel that the Council has made a mistake somewhere, and therefore take the attitude that it cannot tell them anything. This attitude is encouraged by many detail men. Careful consideration, however, will not fail to make us realize the need of a strong central body that can help to overcome the universal *post hoc* error, and thereby correct the fallacies of individual experience; that will counteract undesirable proprietary propaganda; and that can authoritatively publish the glad tidings of new therapeutic discoveries of real value. Especially is such a strong central body valuable in controlling undesirable tendencies in advertising. The rules that the Council has drawn up regarding the advertising of proprietary drugs make up a very potent influence for good, and I hope the day may soon come when all the medical journals in this country will admit only Council passed drugs to their advertising columns. It is far better to be too strict than too lax on this point, for advertising is a mighty power, and should never be employed by a reputable journal to further any questionable enterprise.

This does not mean that I want to see any small group become so authoritative as to enslave us. Galen was so great an authority that his opinions impeded medical progress for centuries. Neither, however, do I want to see Bolshevism in medicine. We cannot afford to ignore the fundamental principles laid down by the great masters of pharmacology and therapeutics. The Council is doing good service in upholding these principles. In this connection, it is well for us to take to heart those ancient words of wisdom inscribed on the Collis P. Huntington Memorial Laboratory in the Harvard Medical School:

"Life is short and the art long, the occasion instant, experiment perilous, decision difficult."

To many the Council may seem too conservative. There may be some justice in this view, yet in this day and time, when the well-nigh universal motto seems to be "give her more gas," it is truly refreshing to find an *intelligently* conservative group, and such a group is so rare as to be priceless. This does not mean, however, that we must all fall absolutely in line with all its minor views and decisions. We must preserve our intellectual independence at any cost, as has been said. Scientific investigation can go on anywhere. No small group can rightfully take the attitude, "I am Sir Oracle, and when I ope my mouth let no dog bark!"

The only real basis, however, of capable independent thought, is a knowledge of fundamental principles derived from a proper correlation of study and observation. Only thus can we profit by our experience as we should, only thus can we fulfil our obligations to our patients, and only thus can we derive the fullness of joy from our work.

1081/2 *North Main Street.*

THE USE OF LACTIC ACID MILK IN INFANT FEEDING.*

By THOMAS D. JONES, M. D., Richmond, Va.

The fact that infants cannot ordinarily digest as great a total amount of cow's milk, as of breast milk, has led to the practice of feeding lesser amounts of cow's milk, diluted with water, and with the addition of some form of carbohydrates to meet the caloric requirements. Such modifications apparently meet the nutritional and developmental demands of most normal infants. But in many abnormal cases, especially the premature or athreptic baby, the amount of milk required is more than can be efficiently cared for by the gastro-intestinal tract, when such dilutions are used. Therefore, the real problem in these cases is to supply a food in not too large volume with a sufficiently high caloric value to meet the nutritional requirements.

It has been shown that sweet cow's milk is capable of neutralizing to a great extent the acid of gastric juice, thereby seriously impairing the digestive function. It has been estimated that the normal range of gastric acidity at the height of digestion for the first year is ph5. The stomach cannot perform its task in the digestive process without producing enough hydrochloric acid to raise the level of acidity to a point where the various enzymes will be

*Read before Junior Medical Society of Richmond, April 25, 1924.

activated. The threshold of ph5 has been assumed as necessary to meet this requirement. Cow's milk, by its high buffer content (chiefly phosphates and calcium caseinate) has a property of binding large amounts of acid and converting the hydrogen into a non-ionized form, thus to all intents and purposes neutralizing the acid. It has been shown that acid milk does not neutralize the gastric juice and in this respect behaves more like breast milk. It is furthermore usually free from pathogenic bacteria on account of the inhibitory effect of the acid on bacterial growth. It has been asserted that the live lactic acid organisms present in bacterially sour milk exert a favorable influence on gastro-intestinal processes, and that the somewhat lowered sugar content is a factor in rendering it more digestible. These considerations, however, cannot be applied to milk soured by the addition of U. S. P. Lactic Acid.

Heineman states that the most complete classification of lactic acid bacteria is that of Lohnis, who arranged them in four groups:

Group 1.—The bacillus coli group is always present in market milk and in the majority of certified milks. It attacks milk sugar with the formation of gases and acids, attacks proteins slightly in the presence of carbohydrates and more profusely in the absence of carbohydrates. The bacillus aerogenes is also a constant inhabitant of milk and belongs to the coli group. It vigorously attacks carbohydrates with acid and gas formation, but does not attack protein.

Group 2.—The streptococcus lactic acid group grows preferably under anaerobic conditions and is abundantly found in the deep layers of sour milk. No gas is formed from the activity of this organism. The spontaneous or normal souring of milk is brought about by the activities of these two groups. The bacillus coli group initiates the formation of acid. The curd formed when the coli group predominates has a great deal of gas in it, indicated by bubbles, and has an unpleasant odor: while the curd formed when streptococcus group predominates is smooth, free from gas bubbles, and has an agreeably sour taste. The temperature at which the coli bacilli group is most active is 30° centigrade or over, while at a more moderate temperature, that is from twenty to twenty-five degrees centigrade, the streptococci soon outstrip the coli group. Hence milk soured at a low temperature has a much more agreeable flavor than that soured at a higher temperature. It is therefore obvious that the best quality of buttermilk is obtained when the milk is sufficiently heated to destroy most of the bacteria and then inoculated with a pure culture of streptococcus lactic acid.

Group 3.—To this group belongs the bacillus bulgaricus, or lacto-bacilli. These bacilli are large organisms and produce more acid than either of the preceding groups. The acid consists chiefly of inactive lactic acid and the curds of milk formed from this group are smooth and semi-fluid. Carbohydrates are essential to their growth and milk is the most suitable culture media. They do not grow at the ordinary optimum temperature of other strains, but require a temperature of about 44° or 45° centigrade. They are almost universally present in milk and Heineman and Hefferman found them in many substances, such as bran, sour kraut, feces of man, horse and cow, and in both normal gastric juice and the gastric juice of patients suffering from carcinoma of the stomach; the Boas-Oppler bacillus was proved to be of this type. As far as present knowledge goes they are non-pathogenic and have been recommended by many authors for therapeutic purposes. The subject apparently needs closer investigation before reaching definite conclusions. Some benefits have undoubtedly been derived from their use, but whether from the prevention of putrefaction, or simply by the introduction of an easily digested food, is an open question. The bacillus acidophilus also belongs to this group, and, according to Rettgen and Cheplin, is indistinguishable from the bacillus bulgaricus. It differs from the bulgaricus, however, in that it produces relatively little acid in milk (less than 1 per cent), and attacks maltose with acid formation. The bacillus bulgaricus has no action on this sugar. It undergoes rapid development when administered by mouth, or as a result of milk, lactose or dextrin feeding. It grows rapidly at a temperature of from 35° to 37° centigrade.

Group 4.—Micrococci are closely related to the staphylococci. They produce acid, break down proteins and play a role in the ripening of cheese, but are otherwise unimportant.

Whole milk artificially soured by inoculation with lactic acid producing bacteria can be obtained from dairies in most large cities under various names, such as bulgarian milk, fermilac, lactase and richelack. Marriott states

that methods of preparing milk from lactic acid cultures are not free from difficulty, that uniform preparation is not readily obtainable, and that contamination of the cultures frequently occurs. While, on the other hand, the addition of lactic acid to sterilized milk can easily be carried out, even by unintelligent mothers, and it is nearer fool proof than other modications. The milk is boiled five minutes, then cooled and U. S. P. Lactic Acid added drop by drop, stirring constantly. One dram is added to each pint of milk. This preparation keeps well even if not kept in a refrigerator and its acidity almost completely inhibits bacterial growth. Marriott has inoculated such milk with pure cultures of bacillus coli and bacillus dysenteria and found no growth at the end of twenty-four hours. Ohtar has shown that when such milk is contaminated by the addition of mixed stool bacteria, no growth of the organisms occurs. The addition of carbohydrates in some form to lactic acid milk is recommended. Marriott prefers Karo Corn Syrup because of its high proportion of difficult fermentable dextrin. Two tablespoonfuls equals one ounce, and it has a caloric value of 120.

The value of the use of lactic acid milk in infant feeding seems to be a well established fact. While it has not been generally adopted as a routine procedure in artificial feeding, Marriott has used it in 90 per cent of his infants in the ward at St. Louis Childrens' Hospital during the last two years. He has also used it in more than one-half of the cases coming under observation in the Washington University Dispensary during the same period and states that the results are so satisfactory that a still wider use of the method is to be recommended.

Babbott, Johnston, and Haskins tested the gastric contents in cases of active tetany and found a definite and marked lowering of the acidity in every case. In these cases the acidity returned to normal value synchronously with the relief of symptoms of tetany, and there was likewise a coincident rise of calcium in the blood serum. It has been found that the disease can be cured by adding acid or acid-forming substances to the diet. Mariott states that he has never seen a case of tetany in a baby fed on lactic acid milk. Observation was made by Von Noorden in 1907 that calcium is known to remain in solution only in an acid medium. In some recent work of Courtney at the Medical College of Virginia in feeding bacillus acidophilus milk to parathyroidectomized dogs, he found that there was a prompt amelioration of symptoms of tetany when this milk was given, but there was no increase in the blood calcium content. He attributes the result to the prevention of putrefaction.

Assuming that rickets can result from too high a degree of alkalinity in the intestines of an individual on a well balanced diet, Dr. Martha Jones, of San Francisco, treated three cases of active rickets by adding acid to the milk formulae without making any other change in the diet. She obtained prompt and striking results in from ten to fourteen days with relief of clinical symptoms, the X-ray showing marked increase in the calcification of bone.

Marriott and Davidson tested the gastric acidity of sixteen abnormal infants suffering from acute and chronic infections, including otitis media, pyelitis, pneumonia, osteomyelitis, and found that the average hydrogen ion concentration was only 1/10th that of normal infants receiving the same food. The same test on the gastric contents of normal infants receiving cow's milk showed a hydrogen ion concentration of only 1/20th that of normal infants fed on breast milk. The gastric acidity of abnormal infants fed on cow's milk was less than in any other series studied, but when the abnormal group was given lactic acid milk they showed a somewhat higher hydrogen ion concentration than the same group fed on breast milk.

The limitations for the use of lactic acid milk in infant feeding seem to be very slight. Faber sets six weeks of age as the earliest time at which acidified milk should be used. He claims that it is not well borne at an earlier age, but the excellent results obtained by both Park and Marriott in feeding lactic acid milk to newborn premature infants would seem to disprove this claim.

Czerny and Kellar are strongly of the opinion that hyperacidity, in the sense of excessive percentage of acid in the gastric secretion of an infant, has never been proved. Carlson's work indicates that hyperchlorhydria in infants never means anything more than rapid secretion of gastric juice with a constant acidity. The following case was probably one of that type.

The case was first seen February 19th, 1924. R. W. S., white, male, age four and

one-half months, father and mother both living and healthy, no brothers or sisters, mother had had no miscarriages, was a full term baby at birth, normal delivery and normal at birth. Birth weight was nine pounds. The chief complaint was regurgitation of food, constipation, restlessness at night, and failure to gain weight. Baby would regurgitate regularly after each feeding from a few minutes to two hours after food was taken. Was breast fed for six weeks but was taken off the breast because of regurgitation and various formalae had been tried, mostly whole milk dilutions, without any relief of symptoms. On physical examination the baby was poorly nourished (weight, eleven pounds, eight and one-half ounces), the extremities were somewhat spastic (hypertonic), there was considerable beading of ribs, with flaring of costal margins and cranio-tabes. The baby was given a bottle during examination, and about fifteen minutes after taking formula became restless and fretful. A distinct peristaltic wave was observed moving from left to right side of epigastrium. This was soon followed by regurgitation of about two-thirds of food taken. No tumor was palpable in region of pylorus. Diagnosis was made of rickets, with a possible pyloric obstruction. Baby was put on one one-thousandth of a grain of atropine twenty minutes before each feeding, and formula of three tablespoonfuls of dried milk to six ounces of water given every three hours. When seen two days later regurgitation was entirely relieved, was taking formula well and mother stated baby was more comfortable than he had been for many weeks. The strength of the formula was increased and Cod Liver Oil was given, the rachitic symptoms improved, and there was a steady and satisfactory gain in weight. On March 20th the weight was thirteen pounds, fourteen ounces, but in view of the fact that there were still evidences of active rickets present, I felt it desirable to make a change to acidified fresh cow's milk, if possible, so started him on a dilution of lactic acid milk and Karo. There was a prompt return of regurgitation with evidences of pylorospasm, but in spite of these symptoms we persisted with the formula for two days, after which the lactic acid was left off, and the same formula was retained without any difficulty. The child is now taking a satisfactory milk formula, is continuing to gain weight and is showing satisfactory improvement in rickets.

The behavior of this case would indicate that a hyperacidity was produced by feeding acidified milk, with resulting pylorospasm. In such case the use of lactic acid milk is probably contra-indicated. Otherwise its use seems definitely indicated in premature and athreptic infants, rickets, tetany and acute and chronic infections.

Bibliography.

Marriott and Davidson: "The Acidity of the Gastric Contents of Infants." Amer. Jour. Dis. Children. Dec., 1923.
Marriott and Davidson: "Acidified Whole Milk as an Infant Food." Jour. A. M. A., 1923.
Rettger and Cheplin: Arch. Int. Med. Mar., 1923.
Babbott, Johnston and Haskins "Gastric Acidity in Infantile Tetany." Amer. Jour. Dis. Children, 1923.
Martha A. Jones: Jour. A. M. A.
Harold K. Faber: "Hydrochloric Acid in Infant Feeding." Amer. Jour. Dis. Children. Nov., 1923.
Paul G. Heineman, Ph. D.: "Chemistry and Biology of Milk." Abt., Pediatrics, Vol. II.

Medical Arts Building.

ECTOPIC PREGNANCY.*

By H. W. PHILLIPS, M. D., Norfolk. Va.

Ectopic gestation presents such diversified pathology and its clinical manifestations are so varied as to make diagnoses difficult. No pelvic condition gives rise to more diagnostic errors and none can be of greater emergency. Its multi-colorings create a confusing panorama of this, now, not uncommon pelvic condition first mentioned by Abulcasis in the 10th century, and first operated by Lawson Tait in 1883. The incidence of eccyesis is quoted to be one in every hundred cases of pregnancy.

Many cases of rupture of the sac, or tubal abortion, undoubtedly occur and pass under the diagnosis of appendicitis, abdominal colic, and the like,—spontaneous recovery taking place.

Ectopic gestation is more frequent in cities; oftener after the age of thirty years,—after long periods of relative sterility; and in those with antecedent pelvic disease. Repetitions are not uncommon, occurring in the same, or other tube. Among the most plausible causes are salpingitis, pelvic adhesions, infantile tubes (convoluted and lack of celia), external wandering of the ovum, diverticular and accessory tubes,—decidual reaction of the tubes, —and diseases of the corpus luteum.

In cases of external wandering of the ovum, the ovum becoming fecundated, grows so large as to be unable to pass the lumen of the tube

*Read before the Norfolk County Medical Society.

and during its sojourn the trophoblast develops to such an extent as to attach itself wherever mullerian tissue is present. The presence of mullerian tissue in the ovary may be explained by the implantation theory of Sampson, or by the hypothesis that it is derived from a congenital "rest."

The most common form of ectopic gestation is tubal pregnancy, whether ampullar, medium, isthmic or interstitial, and the course in all is the same. The trophoblast produces cytolysis of the cells of the mucosa and the ovum burrows into the wall,—analogous to pregnancy in the normal uterus. The villi erode their way into the blood vessels. The wall of the tube being so different from the thick decidua of the uterus, and the ovum acting like a rapidly growing neoplasm, makes the dangers of tubal pregnancy easily grasped. The growing ovum distends the tube to the point of rupture. Some hypertrophy of the tube occurs in all cases, and in rare ones the tube grows to term without rupture.

At the placental site of its attachment, the rapidly growing egg separates the muscular fibers and destroys by erosive action the insufficiently accommodating tube, and weakness at this point results. Any traumatism, straining at stool, jar, coitus, douche or bimanual examination may cause hemorrhage at this point. The bleeding into the tube destroys the ovum and a mola carneosa is formed, or the sac ruptures within the tube producing *intra-capsular* rupture, or the tube bursts and the villi lie free outside the tube, this being *extra-capsular* rupture. When the tube bursts into the peritoneal cavity, the bleeding causes hematocele formation in the pelvis. When the tube bursts into the folds of the broad ligament a hematoma is developed there. Rupture of the tube is the most common termination of *isthmic* and *interstitial* pregnancy, while in *ampullar pregnancy* the gestation sac usually develops toward the fimbriated end of the tube and tubal abortion occurs. In the *interstitial* form, when abortion occurs the ovum escapes into the uterus. All forms of tubal pregnancy may pursue the same course and termination. The course of tubal abortion resembles that of uterine, in that the hemorrhage occurs in the decidua serotina, loosening the ovum from its bed. The blood and ovum now overdistend the tube and rupture of the bag of waters occurs. The foetus escapes in the lumen of the tube, or from either end. If in the tube, the ovum and clots are gradually extruded from the tube into the peritoneal cavity, the blood escaping from the fimbriated end of the tube forming an hematocele in the lower pelvis.

Ovarian pregnancy results when the ovum is fecundated before its extrusion from the graafian follicle, or in an old ruptured follicle into which an ovum is discharged. Ovarian pregnancy is rare, and to prove its existence it is necessary to eliminate the tube or fimbria having any part in the formation of the sac.

Primary abdominal pregnancy is extremely rare and its occurrence questioned. The mullerian implantation theory offers support to the possibility of its occurrence.

Secondary abdominal pregnancy results from tubal abortion or rupture, when the ovum continues to grow. The rupture having taken place at the periphery of the ovum, opposite the placental site, the embryo escapes into the peritoneal cavity or between the folds of the broad ligament inside an intact amniotic sac, or naked. Or the tube, becoming immensely thinned, forms one layer of the sac and distends into the peritoneal cavity, or between the folds of the broad ligament, and continues to develop.

Any secondary abdominal pregnancy may result in late rupture of the sac. In all forms of rupture or abortion with death of the foetus, the mass of clots and embryo, if not beyond the eighth week, are rapidly absorbed by leukocytic and ferment action, and subsequent permeability of the tube is established. Should the pregnancy go to term in any one of these fashions, spurious labor sets in, the child dies of hemorrhage into, or separation of the placenta,—or may not die until later when nature tries to get rid of it as a foreign body. With the uterine contraction the decidua is expelled with slight hemorrhage. After the death of the foetus the liquor amnii and soft parts are absorbed; i. e., the foetus is skeletonized. Infection *via* blood or contiguous structure, especially the bowels, may occur, and the mass with the ovum suppurate into the bladder or rectum,—less often the vagina or abdominal wall. Through the fistula are passed the broken down soft parts of placenta and foetus, and finally the separate bones, the process being one which lasts over a period of months or years and which the patient may not survive.

Another termination of the foetus, is mummi-

fication, and with deposits of lime salts, lithopedion (stone child) formation occurs. These formations have been carried over periods of 30 and 60 years.

Double tubal pregnancy, two gestation sacs in one tube, and twins, and even triplets, in one sac, has been observed.

Combined extra- and intra-uterine pregnancy is not rare, and offers a very serious prognosis. Abortion of the uterine ovum precedes or follows rupture of the ectopic sac. Rarely, the woman goes to term and then labor is usually spontaneous. Death from internal hemorrhage or sepsis of the abdominal mass usually occurs. The extra-uterine foetus rarely obstructs the passage of the intra-uterine. With the successful removal of the ectopic pregnancy, the patient may go to term normally. In the first few months of ectopic gestation there are symptoms referable to the pelvis. Only occasionally a woman perfectly well may suddenly have an internal hemorrhage and die before a diagnosis can be made. Medico-legally the question of foul play may arise. As a rule the patient misses a period and has the ordinary symptoms of early pregnancy, but soon complains of vague pains in the lower abdomen, especially of the side affected, cramp like, due to uterine contractions. After a few weeks disturbed menstruation appears, and suspicions of threatened abortion rise. These symptoms continue until suddenly upon a strain or jar or coitus, a severe pain is felt in one side, the patient feels faint or dizzy, and may vomit or feel nauseated. Symptoms of shock, due to sudden distention of the tube, to irritation of peritoneum, or to great loss of blood may appear. Pains continue and uterine decidua is discharged. These symptoms may indicate rupture or abortion. The acuteness subsides in a few days and the whole process terminates in 3 to 6 weeks, slow absorption taking place. A more stormy picture of rupture of the sac is when the patient is suddenly seized with excruciating pain in the affected side, spreading over lower abdomen. This is followed by nausea and vomiting, with profound shock and evidences of hemorrhage; marked pallor with cyanosis about the lips and pearly conjunctiva; yawning and sighing, or air hunger, with fast, small pulse and extreme weakness. Internal examination reveals enlarged uterus with soft bulging down of cul-de-sac, or a mass in cul-de-sac, if blood has clotted. When the rupture has occurred into the broad ligament, the pain is most intense, due to tearing asunder of the folds of the broad ligament, and shock is more pronounced, overbalancing anemia, and a firm mass (haematoma) may be felt on the side affected. Now should the *foetus continue to develop*, after escape by rupture, there occurs peritoneal irritation, pain, soreness, nausea, vomiting, diarrhea or constipation (sometimes hemorrhage from the bowel), bladder disturbance, loss of strength and invalidism. The signs of pregnancy continue, foetal movements are felt and cause painful distress to patient. The tumor grows with the weeks, and may be asymmetric or median. *Should the foetus die*, the symptoms of pregnancy disappear and there occurs sub-febrile temperature, rapid pulse, anorexia, coated tongue, fetid breath, loss of weight, and invalidism. Subicterus, or marked jaundice, if with fever, denotes beginning decomposition of sac and contents, with sepsis and peritonitis. Or with lithopedion formation, involution occurs, peritoneal irritation subsides and health is restored. Future deliveries may be interfered with by the calcified foetus.

Diagnosis.—Before rupture or hemorrhage into the tube, the tube is as soft as an intestinal loop, and diagnosis is seldom made; whereas after rupture or hemorrhage the tumor can be easily felt.

In an early pregnancy it is necessary to decide whether the tumor is an ovum or not. During the later half one must decide whether the ovum is intra- or extra-uterine. No pelvic condition gives rise to such a multiplicity of pathology and symptomatology, and offers such diversified obstacles to diagnosis. The history is most helpful. When a woman in the reproductive period has irregular menstruation, has gone over the proper time a few days, or sees only a small amount, or has more profuse flow, or has missed a menstrual period or two, complains of cramping pains in the lower abdomen, unilateral, with disturbed menstruation, the suspicion of ectopic pregnancy is aroused. If suddenly the picture of rupture occurs a diagnosis is almost certain. Haematocele is seldom palpable before the first 24 or 48 hours after rupture. It may be behind or in front of the uterus, or to either side, causing displacement of the uterus in opposite direction. In the broad ligament the haematoma can be made out early, is firm and tender and displaces the uterus to side and upward.

Warning—with symptoms of a possible ectopic pregnancy, the examination must be conducted with the utmost gentleness, and with preparations for any emergency.

The diagnosis from uterine abortion is most important and a careful bimanual examination should be made to rule out extra-uterine pregnancy before a curettage is done. Should collapse follow curettement, suspicion of ectopic rupture should be seriously considered.

Acute appendicitis has often been mistaken for ectopic gestation, especially when real pregnancy co-exists. Rupture of a pus tube or any hollow abdominal viscera, perforation of stomach or duodenum or gall-bladder, bursting of an appendiceal abscess, or rupture of a graafian follicle, twisting of an ovarian tumor and a stone in the kidney or ureter give rise to symptoms of ruptured tube,—especially when normal pregnancy is present.

Infected haematoma or haematocele give symptoms of pyosalpinx, pelvic cellulitis or perimetritis. A long cervix, softened at its upper part, allows the fundus to fall backward or to either side. The cervix is mistaken for the uterus and the fundus for the ectopic sac. Angular pregnancy in the early months cannot be differentiated from interstitial pregnancy. The hospital, for observation of clinical course, should be advised.

Pregnancy in a retroverted uterus has been thought to exist, and attempts at replacement have resulted disastrously by causing rupture of an ectopic ovisac. Among the signs that should aid us most materially in the diagnosis of ectopic pregnancy are a careful history, irregular colicky pains, external hemorrhage, scant and fluid, (hemorrhage free from clots, villi and products of conception); profound shock, a mass alongside uterus and more or less anemia and jaundice.

Cullen's sign consists of a dark, bluish discoloration about the navel and can best be observed by darkening the room and using a flashlight upon the navel.

The Abderhalden serological test for pregnancy can be helpful only when negative results are obtained. The Kamnitzer-Joseph glycosuria test is easily done. Claims are advanced that in the presence of symptoms of pregnancy, a negative test will indicate an ectopic pregnancy, in the absence of any undisturbed uterine pregnancy. A large, thick, rough decidual membrane expelled from the uterus, giving a more or less complete cast of the cavity, without chorionic villi, is almost pathognomonic of ectopic gestation.

X-ray is only helpful in late months and where lithopedion formations occur. In the latter months of ectopic gestation the diagnosis is mainly concerned with whether the foetus is extra- or intra-uterine. The prognosis is impossible, due to the multicolored nature of this disease. Many mothers recover spontaneously, or under expectant treatment. The ectopic ova die, or in cases that go to term the foetus is usually deformed or not viable. Morbidity is high due to peritonitic adhesions, decomposition, abscess and the like.

The treatment in the first trimester, whether before or after the explosion, is pre-eminently surgical and the operation is easy; but, when advanced beyond the fourth month, the operation is more formidable, due to extensive adhesions to neighboring organs and large vascular connections, the vessel's wall being very thin.

It may be necessary to leave the placenta *in situ*, removing the foetus and stitching the edge of the sac to the abdominal wall packing firmly and leaving to nature to slough or absorb the mass.

After rupture, when shock and hemorrhage are profound, it is often necessary to combat these symptoms before surgical intervention. This can best be done by the use of morphia hypodermically, hot packs, lowering of head, the intravenous injection of thromboplastin, coagulen or horse serum, tight bandaging of legs and compression of abdominal aorta above its bifurcation.

Infusions, transfusions and stimulants only serve to wash out the patient more thoroughly and should not be employed until after the application of clamps to the bleeding vessels—when their use should be promptly begun.

Remember that in one exsanguinated, the veins are collapsed and inaccessible to puncture by needle. It is time-saving to cut the vein and introduce a cannula. Saline by hypodermoclysis, during operation, is advisable. The operation should be performed at the hospital if possible, but at the home if necessary.

Taylor Building.

AN EPIDEMIC OF PNEUMOCOCCIC INFECTION AT THE EASTERN STATE HOSPITAL.*

By ERNEST H. ALDERMAN, M. D., Williamsburg, Va.

During the past three months we have had at the Eastern State Hospital an epidemic of quite serious proportion. As will be noted from the title of my paper we have held the pneumococcus accountable for this. It is a question whether the title is well chosen. I wish therefore to modify it by stating that while we are uncertain as to the primary cause we know that some form of the pneumococcus was prominent in a large percentage of cases. Unfortunately we were unable to determine the type of pneumococcus because of the lack of proper facilities.

We cannot state definitely when the epidemic started. During last autumn we had a number of cases of colds, coryza, and bronchial disorders. These, however, were mild in effect. During January more of these cases occurred and steadily increased in number and in effect. Several cases were reported daily. We soon realized that we were entering into a condition quite comparable to that of 1918-19. In the latter part of February and throughout March conditions became worse. More of the cases developed pneumonia, and various complications occurred: e. g., tonsillitis, otitis media, peritonitis, cervical adenitis, cellulitis, and erysipelas. With these complications April furnished us with work which almost overwhelmed our small staff. During the three months in which this epidemic raged we recorded a total of 167 cases, 138 of these being on the patients' roll; twenty-nine among attendants and employees. I have classified these with respect to the predominating features in each case, and, with your permission, will discuss them briefly.

1. Uncomplicated Influenza

This is, I realize, a term of doubtful meaning because no one knows exactly what influenza is, or exactly where it stops and its complications begin. For example, bronchopneumonia is by some regarded as a complication, by others as a part of the disease. One is almost tempted to believe that by uncomplicated influenza is meant those cases which do not end fatally. Here, however, I mean those cases which had the well known features of the 1918 epidemic, and did not develop pneumonia, or any apparent complication. Of these we had sixty-three cases, forty-five female, and eighteen male; ages in these cases ranged from twenty-nine to seventy-four years with an average of 49.5 years. The onset as far as we could tell was sudden. Those of you experienced with the type of patients such as we have in our hospital will understand how difficult it is in many cases to tell when there is actual physical infirmity, and how difficult it is to make a proper examination. Subjective aids or symtpoms are of little value. Some of those afflicted with mental disorder complain incessantly of varied aches and pains, others are absolutely indifferent to illness and pain. Objective examination is made uncertain by lack of co-operation, and indifference, or worse still, by resistance sometimes of a violent nature. In most of these cases the patient who the day before had been apparently in good physical condition would stay in bed and refuse nourishment. Often the onset was with nausea and vomiting. There was usually erythema of the face and neck. Nearly all would complain of headache and aching in the joints and back, and of a chilly sensation. Anorexia, nausea, and vomiting, as said, were common. Temperature in these cases was high at the outset, ranging from 100° to 103°. There was coryza, with congestion of the visible mucous membranes; nearly all had a dry, hacking cough. Epistaxis, so common in 1918, was not seen in a single case. Examination of the lungs invariably showed areas of diminished breath sounds with fine crepitant rales in the base of the lungs, more especially at the inferior angle of the scapula on the right. Leucoyte counts were usually normal or slightly subnormal. Four cases, however, showed counts from thirteen thousand to eighteen thousand over a period of two days, then dropping to normal. The differential count showed an increase in neutrophilic polymorphonuclears up to 90%. Urinalyses were most often negative; a few showed a trace of albumin with an occasional finely granular cast.

All of these cases cleared up after two to four days of acute illness and prostration. There was weakness and anorexia lasting for a week or longer. In these cases we were unfortunately able to do no thorough bacteriological examination. A few sputums were examined and cultures made, these showing mixed infections—bacilli, streptococci, staphylo-

*Read before the Walter Reed Medical Society, in Newport News, Va., May 14-15, 1924.

cocci, diplococci, etc. In the maze of literature brought out in the past five or six years the most commonly accepted theory is, I believe, that while the bacillus of influenza (Pfeiffer) is not the cause of influenza it is usually present and that no one known organism is the specific agent.

2. Influenza With Erysipelas

Erysipelas is a dread term in any hospital, but particularly so in large hospitals for mental and nervous cases. The Eastern State Hospital had an epidemic of this disease eighteen years ago, at which time nearly one hundred cases occurred, fifty or sixty of which ended fatally. Since then only sporadic cases have occurred. On February the 29th past, we discovered a case of erysipelas in a patient seventy-eight years of age, who had been ill for several days with what we regarded as influenza. This patient has a basal cell carcinoma involving the tissues about the nose and left orbit for which he has received X-ray treatment. The erysipelas started at the periphery of this growth and rapidly spread over the face to the ears, involving one ear to a slight degree. This case was easily controlled in four or five days. On the 9th of March the second case occurred and then followed one or two per day for a week or more. Cases continued at intervals until late in April. No new case has occurred in the past three weeks. In all we have had twenty-four cases, seventeen of which recovered while seven died. We were soon struck by the fact that each case occurred in a person who was at the time suffering with the same symptoms as those with influenza or had only recently recovered from such. We at first ascribed this to the debilitating effect of the influenza on the resistance of the patient. Strenuous but unsuccessful efforts were made to locate the source of the infection. The first ten cases occurred on ten separate wards, so the probability of a single ward infection was dispensed with: the cases occurred simultaneously in the male and female departments so it was hardly likely that the physicians or attendants carried the disease from ward to ward. Bacteriological tests made at the laundry determined that proper sterilization was carried out with clothing and bedding. The milk, water and food supplies were tested without results.

We supposed that the disease was caused by the streptococcus erysipelatis but, on examining smears and cultures, found to our surprise that the predominating organism was an encapsulated diplococcus, Gram-positive, many of them intracellular. The material was obtained from blebs and from pus sacs forming in the skin usually about the infra-orbital spaces and the ear lobules. Eight cases showed the diplococcus; four gave negative results; the others were not tested. The only case where streptococci were found was one in which large abscesses formed and here the streptococci, staphylococci, and diplococci were found in about equal proportion. No bacilli were found. That diplococcus may at times be the causative agent in erysipelas is of course well known.

The clinical course was that of the usual type of erysipelas. Nineteen cases started about the nasal orifice as a small reddened area which rapidly spread. The periphery was elevated and fiery red, with occasional radiating red, thread-like lines. The patients became greatly prostrated, had high fever and complained of pain and burning about the face. Temperature at the outset was 101° to 102°, but rapidly mounted, becoming in some cases as high as 105°. It was of the remittent type with an evening temperature one to two degrees higher than that of the morning. The high temperature continued five to ten days, then subsided by lysis. Healing began as usual at the older areas. The general reaction was as usual. While most of the cases started at the nasal orifice, the first lesion in two cases was at the ears; in two cases it was on the legs and in one on the hand; one case involved both hands and arms, and face. The leucocyte count was very high, the lowest being fifteen thousand while many were from twenty-five to thirty with a few going above forty thousand. The percentage of polymorphonuclears was correspondingly increased. Blood cultures were made on four cases (repeated tests in one case) with negative results. Urinalyses showed albumin and casts. Sixteen cases made an uneventful recovery: one case developed signs of an abdominal infection, followed by cystitis, but recovered. One case developed gangrenous erysipelas of the left leg and died; five cases developed pneumonia and died, one of these meantime suffering a cerebral hemorrhage; one case died from acute dilatation of the stomach as ascertained at autopsy.

3. Influenza With Infection About the Throat and Neck

Nearly all of our cases presented an early sore throat. In twenty cases this developed into a follicular tonsillitis. There was the usual general reaction. Locally the tonsils were greatly swollen with the crypts filled with pus. Cultures from this gave the pneumococcus in almost pure form. A few cases showed staphylococci and streptococci mixed with the diplococci. No case showed the diphtheria bacillus.

Four cases developed what we thought was peritonsillar abscess. There was tremendous swelling of the tonsils and of the soft tissues about them, and particularly of the uvula. Incisions were made but no pus was found, only a thin watery serum being present. In two of the four the serum showed encapsulated diplococci: the other two were negative bacteriologically.

In six cases the predominating feature was an infection of the tissues of the neck following an infection of the throat. There was great swelling of the cervical glands. Soon the whole side of the neck was a swollen mass. In three of these suppuration did not occur though one was incised in an attempt to find pus. Three cases did suppurate and when an incision was made eight or ten ounces of a thick sero-purulent fluid was obtained, in all of which we found the encapsulated diplococci. Only one showed, in addition, streptococci and staphylococci.

All of these thirty cases had a temperature ranging from 100° to 104° which after four or five days of remittency subsided by lysis. The leucocyte count was from fifteen thousand to twenty-eight thousand with a polymorphonuclear percentage of ninety to ninety-five. Twenty-nine of the cases in this group recovered; one developed pneumonia and died.

4. Influenza With Bronchopneumonia

Of the one hundred and sixty-seven cases, twenty-seven developed bronchopneumonia: eight of these recovered without further complication. Eight died of the influenza pneumonia; four died of erysipelas with pneumonia; one with cholecystitis and pneumonia; four with peritonitis and pneumonia; one with cervical cellulitis and pneumonia; one with pneumonia and pulmonary infarct, as found at autopsy.

In all of these cases the general reaction was very severe. Temperature ranged from 102° to 105°. In the fatal cases the pneumonia became apparent only twelve to eighteen hours before death. The physical signs were those of bronchopneumonia. Leucocyte counts were well above twenty thousand, some going as high as forty-five thousand, and in one case complicated by peritonitis going to sixty-seven thousand five hundred. We were permitted to do autopsies on five. All of these showed the bloody frothy lungs found so often in the 1918 epidemic with pneumonic patches scattered throughout. Smears and cultures showed the pneumococcus in abundance; one case showed a mixed infection.

5. Influenza With Peritonitis

All of the ordinary cases had abdominal symptoms, chief of these being nausea and vomiting. In twenty-four cases the abdominal symptoms predominated. There was the usual three or four days of the general type of influenza. Then the temperature suddenly rose to 104° or 105°. The nausea and vomiting became more pronounced; there was abdominal distention and marked tenderness; there was persistent diarrhea. Sixteen of these cases made a recovery after two or three days of intense illness. One case (an attendant) was sent to a general hospital where operation revealed acute and chronic cholecystitis. One case was operated upon in our hospital. This patient after three days of influenza developed double salpingitis. We treated the case expectantly, and peritonitis developed. At operation we found a thick purulent peritoneal fluid. We expected to find the gonococcus in this case, but culture revealed a Gram positive, intracellular diplococcus.

One case died of cholecystitis complicated by bronchopneumonia. Four other cases died within twelve hours after the onset of acute illness, and in all of these we found at autopsy bronchopneumonia of both lungs with peritonitis. The exudate in these cases was of a heavy sero-fibrinopurulent type. In every case the pneumococcus was found in abundance in the lung exudate and in the peritoneal fluid. In one of these cases, an old manic depressive seventy-nine years of age, we had not suspected a peritonitis. One other case developed signs of peritonitis, and, although operation was immediately performed and a quantity of sero-purulent fluid removed, the patient died within twelve hours, making the sixth death from peritonitis. The fluid in this case showed the diplococcus alone.

6. Influenza With Other Complications

Arthritis was a complication in three cases. This resembled acute rheumatic fever except for short duration. Also there was not such marked swelling. No fluid could be made out, hence bacteriological examination was not done. These cases ran a temperature of 101° to 103° over a period of three days; leucocyte counts were from fifteen thousand to eighteen thousand.

Otitis media occurred in four cases, one of these, in addition, having the cervical cellulitis previously described. Three of these four cases recovered. The other case afforded us an interesting autopsy. The patient, a man forty-eight years old, had been suffering for two days with the ordinary type of influenza. Suddenly his temperature rose, and there was evidence of otitis media and meningitis. Spinal puncture was done; the fluid was under great pressure, and contained an abundance of pus cells with a few streptococci and many encapsulated diplococci, frequently intracellular. Within twenty-four hours the patient died. At autopsy we found cerebral and spinal meningitis, otitis media, peritonitis (which had not been clinically diagnosed) and bronchopneumonia.

Summary and Conclusion

Report is made of 167 cases of influenza. Sixty-three of these were uncomplicated. Twenty-four developed erysipelas; twenty had follicular tonsillitis as a complication; four presented peritonsillar oedema as a predominating feature: six developed cervical adenitis and cellulitis; twenty-seven had bronchopneumonia; twenty-four cases presented abdominal symptoms as the most marked characteristic, in eight of which peritonitis was known to be present; three cases were followed by arthritis, four by otitis media, one by otitis media with meningitis. As may be noted, in several cases, two or more of these complications occurred in the same patient. There were twenty-four deaths distributed as follows:

Influenza pneumonia	8
Influenza pneumonia with cellulitis	1
Influenza pneumonia and pulmonary infarct	1
Influenza and erysipelas	1
Influenza pneumonia and erysipelas	5
Influenza and peritonitis	1
Influenza pneumonia and peritonitis	4
Influenza pneumonia and cholecystitis	1
Influenza with erysipelas and acute dilatation of the stomach	1
Influenza with otitis media, meningitis, peritonitis, and pneumonia	1
Total	24

It is of interest to compare briefly this epidemic with that of 1918. No accurate records were kept of the latter, but we know that out of a population of 775 patients, 162 cases of influenza occurred. Of these twenty-nine were fatal; the cause of death in each case being given as bronchopneumonia. Twenty-five of the fatal cases were male of an average age of thirty-eight; four cases were female of an average age of thirty-six. There were no cases of erysipelas, peritonitis or other complications. In this year's epidemic there were 138 cases among the patient body, out of a total enrollment of 1,015 during the three months. Twenty-four cases were fatal. Of these twelve were male of an average age of sixty-five years; twelve were female of an average age of sixty-nine. The great majority of all the cases, fatal and recovered, were well above fifty years of age.

We were interested in observing the effect of these infections upon the mental condition of the patients. So far as we could tell there was no marked change of even temporary effect except that the prostration temporarily brought about a suppression of manic manifestations. The cases were about equally divided among the different types of psychosis except that most of the fatalities were in the senile dementia group.

In conclusion, I wish to repeat that we do not claim that the pneumococcus was entirely responsible for this epidemic of influenza, but we do think, especially from our laboratory findings, that it was the predominating organism in the more severe complications, and it is especially notable that it was the apparent cause of erysipelas and peritonitis which are unusual complications of influenza, and are rarely due to the pneumococcus.

PERFORATING GASTRIC ULCER WITH REPORT OF CASES.*

By S. B. MOORE, M. D., F. A. C. S., Alexandria, Va.

Etiology is really a mooted question, therefore I will touch on some of the more probable causes. The infection theory holds a prominent place. The Mayos and others have, by experimental work on dogs, caused gastric ulcer by obtaining a culture from the ulcer bed and transplanting it in the stomach wall of a dog, or by drilling out several teeth and filling in with a culture of this ulcer and plugging the teeth, the ulcer remaining in the stomach wall until the teeth are extracted. Another factor that takes a minor part in the conslderation is lowered vitality, since this lessens tissue resistance and interferes with the blood supply of the parts, and excessive acid content of the stomach is by some considered a factor.

Hischowitz found gastric ulcer in 4.9 per cent of the tubercular cases at post-mortem. Bristto produced gastric ulcer in dogs by cutting the vagus and administering hydrochloric acid by mouth. Adrenalectomy will cause gastric ulcer. Experimental work has shown that thyroid deficiency will cause hyperacidity. I do not depend upon high acidity as pathognomonic in diagnosis of ulcer of the stomach. We find a certain number having a low acidity with ulcer. Hyperacidity is found in pyloric, or near pyloric cases. Occasionally you will find exceptions to this. Patterson found there was sometimes normally hypoacidity in ulcer of body of the stomach, and frequently hyperacidity in cases of pyloric ulcer. Koennecke claims that the pyloric end of the stomach secretes a hormone, which regulates the secretion of gastric juice, acting either through the blood or in a nervous reflex manner. When this hormone is deficient, excessive gastric secretion occurs.

Symptoms of perforated ulcer are very acute and intense, and cannot well be mistaken if you take in consideration the case history. Gastric ulcer occurs three times as often in men as in women. Frequently before perforation symptoms are slight: the patient may claim that he has had indigestion or hunger pains, which are nearly always relieved by food, alkalies, or vomiting. Diagnosis of acute perforation of the stomach is sometimes rendered difficult by absence of history of gastric disturbance and absence of vomiting. Pain in the lower abdomen, more over the right iliac focca, is due to an accumulation of gastric contents in this part. As a rule the diagnosis is easy if the possibility of the condition is borne in mind. The clinical picture is that of an acute onset with collapse; secondary or referred pain in left supraclavicular fossa; it comes on slightly after the original pain and does not last long. The history of this symptom can always be gotten by questioning the patient. Air is present in the abdominal cavity. Methylene blue may be given by mouth and, if found in the abdominal cavity, is proof of perforation. In one of my recent cases diagnosis was made by the odor of corn whiskey free in the abdominal cavity. This man was referred by a doctor from Nokesville, Virginia. The patient had been in good health with the exception of attacks of indigestion at long intervals. He had been treated for high blood pressure; had an acute perforation with severe pain and muscular rigidity; his friends thought it a case of intestinal cramps and gave the usual remedy, which increased the pain. I would not, therefore, advise this as a routine treatment for gastric perforation.

W. J. Mayo, from 1,200 cases of gastric ulcer studied, states that chemical and microscropical examinations of gastric contents are of little value.

Carman is quoted as making an accurate positive and negative diagnosis by means of X-ray in 95 per cent of 7,000 cases in a period of six months. This proves that X-ray is a most valuable method of diagnosis for the non-perforating type of ulcer.

M. J. Stewart, in a study of complications in an analysis of 350 fatal cases, found the most common one to be perforation. This rapidly follows a sloughing of a part or all of the peritoneal floor due to a slow progressive devascularization.

As to differential diagnosis from appendicitis, cholecystis, stone in the common duct, nephritic colic, and acute pancreatitis, and many other conditions, a complete history will usually clear up doubt in many of these. I find that acute appendicitis and perforated ulcer have many similar symptoms, especially when the gastric juices have flowed down over the viscera and peritoneum of the lower abdomen. Acute pancreatitis is another disease having many symptoms in common with perforated ulcer, and especially when the perforation ex-

*Read at the meeting of the Medical Society of Virginia, Maryland and District of Columbia, in Alexandria, May 21, 1924.

tends down into the pancreatic tissues. Perforation of the gall-bladder is rather hard to differentiate from gastric perforation

Stomach perforation usually occurs on the anterior wall near the lesser curvature,—and fatal hemorrhage is usually caused by a chronic ulcer. As to malignancy in chronic ulcer, ten per cent of all cases of simple chronic ulcer coming to operation have developed cancer from the ulcer, and one-half of these malignancies are unsuspected at the time of operation.

Ulcers are divided into acute, sub-acute and chronic varieties. The chief differentiation lies in the presence or absence of fibrosis. Acute ulcers are multiple and widely and irregularly distributed; they vary in size but the majority are less than one-fourth of an inch in diameter. They have a punched out appearance and are shallow, involving at the most the mucosa and sub-mucosa. Acute penetrating ulcers are terraced because of penetration over a lesser area of the muscular coat. Acute perforating ulcers are very rare and tend to heal readily. The amount of fibrosis and scarring is dependent upon the involvement of the muscular coat. Chronic gastric ulcers are single, but may be accompanied by acute ulcers. Most of the chronic ulcers occur along the lesser curvature.

Treatment of perforating ulcer is purely surgical: fifty per cent of the non-perforating ulcers can be cured more or less permanently by medical treatment. I recommend medical treatment at first for nearly all simple ulcers. In case of hemorrhage, medical treatment is important. When the hemoglobin is down and the patient very much reduced from the loss of blood, this is preliminary to surgical intervention. As to the method of procedure in surgery, some claim they get good results by simple closure of the perforation; others claim closure with gastro-enterostomy is necessary. Surgeons in favor of more radical treatment than the simple closure alone claim that ulcer is not cured by perforation and simple closure. Others do a partial gastrectomy. This is an excellent method for the non-perforating type but, in my opinion, it is too radical for the patient who has had a certain amount of shock, and whose peritoneum is soiled from the contents of the stomach.

Gibson reported twenty-eight cases of perforating gastric ulcer with simple closure, having a mortality rate of twenty-one per cent; eight had recurrences three months after operation.

T. Beer reported nineteen perforations with an operative mortality of sixty-three per cent.

McCreery reported twenty-five cases of acute perforation at Bellevue Hospital between October 1, 1919, and August 1, 1923, with a mortality rate of twenty-eight per cent. Some were treated by simple closure; others by closure and gastro-enterostomy. Drainage was done in early cases and was later discarded.

Roepeke reported nineteen cases. Thirteen of these, done in the first twenty-four hours, had no deaths; six operated on after forty-eight hours had a mortality of fifty per cent. Posterior gastro-enterostomy was done in thirteen cases with one death, and the simple closure method was used in six cases with two deaths. Eleven of the cases treated by gastro-enterostomy were entirely free from symptoms, while of the six not so treated one required second operation for ulcer.

Manuiloff, in a detailed study of forty-nine cases, stated that the number of hours that intervened between perforation and time of operation is of utmost importance. The prognosis on these cases was divided into three groups:

(1) Less than 6 hours, 13 cases with one death, or 7.6 per cent.

(2) Less than 12 hours, 15 cases with 8 deaths, or 53.3 per cent.

(3) Less than 24 hours, 21 cases with 21 deaths or 100 per cent.

From a study of the literature of perforating ulcer of the stomach, the following factors are of importance in making a prognosis:

(1) Length of time elapsing between the time of perforation and operation.

(2) Presence of troublesome adhesions.

(3) Character and quantity of gastric secretion, whether septic or aseptic.

(4) Experience, ability and judgment of the surgeon to do the operation rapidly, thoroughly and with the least trauma and exposure of the viscera.

(5) Proper nursing and after treatment.

I wish to report eight cases of perforation, all operated on within twelve hours, with no deaths. Four cases operated on since 1911 up to 1923 are all in apparently good health. Four cases operated on within the past year, from last reports, are doing well and are free from all digestive disturbances. One case had

high blood pressure, which has returned to normal since operation.

Summary of Treatment

(1) Perforating ulcer should be operated on within twenty-four hours.

(2) Cauterize edges of the perforation.

(3) Close all perforations with two or three layers of sutures and cover with an omental graft.

(4) Do a posterior gastro-enterostomy.

(5) Clean out stomach contents from the abdomen by suction and mopping.

(6) Place in a Fowler position as soon as the patient reacts from the anesthetic.

(7) Use Murphy drip.

(8) Give water in small amounts after forty-eight hours.

(9) Liquid predigested food may be given after third or fourth day.

I find that a modified Sippy diet is excellent for this class of cases.

I have used drainage in all my cases and removed the tube after the third day. Many surgeons are doing partial gastrectomies for this condition. The methods which have given the best results are Polya, Balfour or Billroth 1, or the Finney operation. Another method reported by H. Fischer is to do first a Billroth operation. After the posterior walls have been sutured and before the anterior sutures are introduced, an Einhorn duodenal tube is introduced in the jejunum through the anastomosis. Immediately, upon completion of the operation, one ounce of whiskey and three ounces of water are introduced through the tube. Four hours later the administration of Einhorn's feeding every two hours is begun. Water is given between feedings to allay thirst. On the eighth day the tube is removed, and the patient placed on a soft diet by mouth. There is no pain or nausea or any inconvenience following this procedure.

Finsterer favors resection for all gastric ulcers which are to be operated upon. All his cases are done under splanchnic anesthesia.

In conclusion, I wish to state that all of my cases were free from post-operative pain and it was, therefore, unnecessary to administer opiates.

811 *Prince Street.*

References

Fischer, H.; Resection of Stomach for Ulcer. Immediate Feeding with the Duodenal Tube. Ann. Surg. 1923, LXXVII, 773.

Manuiloff, W. P.: Perforating Gastric Ulcer, According to Reports of Obuchow Hospital, Verhandl d Russ. Chin. Knog. Petrograd, 1923.

McCreery, J. A.: Acute Perforating Ulcer of the Stomach, Ann. Surg. 1924, LXXIX, 91.

Roepke, W.: How Should an Ulcer of the Stomach and Duodenum Which has Perforated into the Abdominal Cavity be Treated? Deutsche Med. Wchnschr, 1922, XLVIII, 889.

Finsterer, H.: The Surgical Treatment of Ulcer of Stomach and Duodenum, Surg., Gyn. and Obst. April, 1923, XXXVI, 45.

Mayo, W. J.: Radical Operation on the Stomach with Especial Reference to Mobilization of the Lesser Curvature. Surg., Gyn. and Obs. 1923, XXXVI, 477.

Gibson, C. L.: Acute Perforation of the Stomach and Duodenum, with Report of Sixty Cases, Am. J. M. Sc., 1923, CLXV, 809.

Beer, T.: Surgery of Gastric and Duodenal Ulcers and Their Complications. Deutsche Ztschr. f. Chir., 1923, CLXXVII.

Moynihan, Sir Berkley: Essays on Surgical Subjects, 1921.

Gibson, C. L.: Acute Perforation of the Stomach and Duodenum, Boston M. and S. J., 1923, CLXXXIX, 425.

Koenneche, W.: Gastric Ulcer, Arch. f. Klin. Chir., 1923, CXXIV, 316.

Balfour, Donald, C.: Various Types of Gastric Resections, Surg. Clin. of N. A., April, 1924.

SOME PRACTICAL POINTS IN MALARIA CONTROL.*

By J. H. CROUCH, M. D., Williamsburg, Va.

As an introduction to the subject of malaria control it seems desirable that I give you some idea of the prevalence of the disease in Virginia. Most of the cases are of course found in the tidewater section, and I have taken three counties, namely, James City, as representative of the Peninsula, Isle of Wight of the South Side, and Northampton of the Eastern Shore. The average for these three counties will be very nearly the average for all the counties represented in the Walter Reed Medical Society. During the past five years there have been reported from these three counties 3,052 cases of malaria, and 3,834 of *all other* diseases, not including influenza. Or in other words, if we exclude influenza, we find that there were nearly as many cases of malaria as of all other communicable diseases combined. Since not more than one-third of the cases ever consult a physician, and supposing that but seventy-five per cent of these are reported, we figure that about eight per cent of the people have an attack of malaria each year. How many of these cases are relapses from previous attacks we cannot tell, except that we do know that all cases occurring between November 1st and June 20th must be

*Read at the meeting of the Walter Reed Medical Society, in Newport News, Va., May 14-15, 1924.

relapses, since the anopheles is not active after frost, and the few adults which survive the winter do not carry the infection with them. Breeding starts again in Virginia about June 1st, and it takes about fourteen days for the mosquito to hatch, and twelve days for the plasmodium of malaria to go through its sexual cycle in the mosquito.

A comparison of Virginia with other Southern States might be of interest to you. In James City County last year we took smears from 178 people, none of whom had active symptoms, and eight of them, or about five per cent, were positive. Beaufort County, N. C. reported sixty per cent positives in 3,000 smears, and a small section below Newbern had ninety per cent positives. Sections of Alabama and Arkansas report twenty-five per cent positives. So we may console ourselves with the thought that other sections are lots worse than ours.

Malaria, as you know, is contracted only through the bite of an infected anopheles mosquito. The first and most logical thing in malaria control work is to destroy the anopheles, the second, to try to keep her from becoming infected, and the third, to keep her from biting a well person after she becomes infected. The reason for saying "her" instead of "him" is that only the female has a taste for blood, and she only on certain occasions. All mosquitoes, contrary to the usual belief, are vegetarian, living on plant juices. It is only when the female becomes pregnant that she needs a meal of blood to furnish the protein for the development of her eggs.

Of the numerous strains of anopheles, all of which carry malaria, we have only two in Virginia, the anopheles quadrimaculatus and the anopheles punctipennis.* These two differ in appearance, habits, breeding places, etc., and will be considered separately. The quads are found in every malarial section of America and are *always the chief offenders* in spreading malaria. Findings of various investigators show that they are responsibile for more than ninety per cent of infections in Virginia, leaving only ten per cent for the puncts.

All anopheles have certain points in common; they fly and bite only at night; they travel from their breeding place never more than one mile and usually not more than one-half mile; they are rather timid and will not light on a person while he is moving; they breed only in fairly clean water, the larvae lying flat on the surface of the water; the adults have spots on their wings; when resting, the proboscis, thorax and abdomen are in a straight line and pointing towards the surface upon which they rest. The differences between quads and puncts have a very important bearing on the methods of control. While both fly and bite at night, the puncts will not enter a door or window. They are known as porch biters because they usually attack persons sitting on the porch or in the yard. They are rarely found in the house even when no screens are used. The quads are known as room biters because they come into the house. At least ninety-nine out of every 100 anopheles found in bedrooms prove to be quads.

Quads will of course bite out of doors also if the victim sits quietly for a little while.

Another important difference between the two strains is the type of water which they select for a breeding place. In James City County the puncts seemed to prefer ravines, ditches, marshy places, small water holes, and slowly moving water. Sometimes they were found in artificial collections of water such as cisterns and horse troughs that were not in use. Quads were found breeding heavily in larger ponds, especially at the sides and around the dams; they bred in moderate numbers in quiet lagoons in the swamps, and in what are known as frog ponds. No quads were found in ravines, ditches, small water holes or artificial containers. The only exception to this was an old bath tub in a farmer's yard. This had become filled with rain water, was covered with dead leaves and had a large number of larvae. which, on hatching, proved to be quads. It would be well to state here that the larvae of the two strains cannot be differentiated. With the adult mosquito, however, it is very easy. The puncts rest with the body perpendicular to the wall and they have a bright, silvery spot near the tip of the wing, as well as the brown spots. The quads usually rest at an angle of about forty-five degrees and have four brown spots on each wing.

The problem in James City County may be summarized as follows:

More than ninety per cent of the cases are caused by quads. The heaviest breeding of quads was found in the ten or more large ponds in the county. We believe that the control of mosquito breeding in these ponds would

*Since this article was written crucians have been found in several sections.

wipe out at least seventy-five per cent of the malaria in the county. Mosquito breeding may be checked in several different ways: first, by draining the water off, this, of course, being permanent; second, by the use of oil or poison, a remedy which is only temporary and must be repeated often; third, by stocking the ponds with small fish such as minnows, gambusia and small perch. The ponds referred to are used either to operate grist mills or as fish ponds, and the first two methods could not be considered. They are already stocked with small fish, but the larvae hide in the vegetation and floatage around the edges where the fish cannot get to them. Thus the problem is to get rid of the vegetation and floatage. A practical and very effective method of doing this is to raise the water level at least twelve inches during the spring. This will drown out the land vegetation on the edges. Then, by lowering the water to normal about the middle of June, the floatage will be either stranded or carried off, and the sun will kill any water vegetation which may have come up. This should be repeated each year. The effectiveness of this method is fully shown in one of our ponds. Repeated examination proved it to be free of larvae and upon inquiry it was found that because of the small water supply, the miller would hold the water as high as possible during the spring rains so as to have enough water to operate the mill every day during the first of the summer. About the middle of July the water would get so low that he could operate only two days each week.

Around towns and villages it is practical from an economic standpoint to do drainage. Smithfield is a good example of this. But in isolated farms, if the breeding areas are very extensive, we have to depend on screening. Screening should be advised as a routine measure everywhere in this section. Bear in mind, however, that for it to be effective several things are necessary. The screens must cover every opening including the fireplaces. They must be tight fitting and not coarser than 16 mesh. The folding screens which so many people use are not at all effective against mosquitoes. They keep out flies fairly well but, since they are covered with 12 mesh wire, some mosquitoes work through them, and they always leave an opening between the upper and lower sash. A mosquito will buzz around a window all night trying to get in and, if an opening is there, she is very liable to find it. In the morning she spends less than thirty minutes trying to get out, and then hunts a dark place, probably under the bed or in a closet, where she roosts until the next night when she attacks some other member of the family. It is usually in a home which is *screened* but not *effectively screened* that several members of the family have malaria at the same time. Another point which it may seem foolish to mention but is often forgotten is that all members of the family must stay behind the screens from sunset to sunrise during the summer and early fall. They are, of course, safe out of doors while moving, but they cannot expect the screens at home to protect them when they visit their neighbor at night, or when they go to church and sit in the flivver during night services as so many do.

Our last point of attack is the attempt to prevent the mosquito from becoming infected. The malaria case in its incipiency, and for a week or ten days after the chills start, is not capable of infecting the mosquito. After this time the gamites or sexual forms of the parasite begin to make their appearance in the blood. These gamites remain in the blood indefinitely in untreated cases, producing no symptoms in the patient. Relapses in the patient are produced by the stirring to activity of the asexual forms of the parasite which lie quiescent in some organ such as the spleen. The mosquito to become infected must swallow both male and female gamite. Copulation takes place in her stomach and the pregnant female gamite penetrates the mosquito's stomach wall, where she produces the next generation of sexual form of parasite. These wander in the lymph stream all over the mosquito's body, a favorite spot for them to accumulate seeming to be the salivary gland. Apparently they produce no ill effect since the infected mosquitoes live about as long as uninfected ones. After several generations of the sexual type, or in about twelve days, asexual forms begin to appear, and these, being injected into another person, produce another case of malaria.

To summarize, only chronic cases infect the mosquito and twelve days must elapse before the mosquito can infect man. This shows the importance as a preventive measure of clearing up the chronic cases, and the best method of doing this is to give a dose of quinine every night for eight weeks. The Standard Bass

treatment is ten grains each night. I believe that in Virginia, where we seem to have a less resistant form of parasite, five or six grains would be sufficient.

REPORT OF TWO CASES OF FOCAL INFECTION.*

By GEO. T. KLIPSTEIN, M. D., Alexandria, Va.

Mr. President and Gentlemen of the Medical Society of Fairfax County, District of Columbia and Maryland:

I am presenting for your consideration this morning, the report of two cases of focal infection, not that I expect to present any new thought, but rather to emphasize the great difficulty of accurate diagnosis in some of these cases. Focal infection has time and again been declared a very dangerous element in human economy by writers from many standpoints. Complete systemic studies of the foci, especially in relation to the diseases of the urinary and gastro-intestinal tracts are necessary for a proper recognition and treatment of these conditions. Injurious effects of the dental foci upon the heart, joints, kidneys and vessels are now generally recognized, but the far-reaching effects upon the urinary and gastro-intestinal tracts are frequently overlooked.

Case I.

Twenty-three years ago the man whose case I am about to report, was as fine a specimen of health as could be found in Arlington County, Virginia. There were five sons and one daughter in the family, all healthy. His father and mother were both strong people. His mother died from liver trouble in her 86th year, and his father in 72nd year. Twenty-three years ago this man met with an accident that caused two of his incisors to be broken off just above the gum and they were crowned with gold. About six months afterwards, his bladder began to give him trouble. From this time up to eighteen months ago, I give his story as he typed it for me. I do this because he is a man of considerable intelligence.

"About twenty-one years ago I noted something wrong with my bladder. I had to urinate about every three hours, but had no pain. Doctor T. at Falls Church, Va., gave me some medicine, but it did not relieve me. Sometime later I came to Alexandria, Va., and was treated by Doctor M., who gave me medicine and used sounds on me for awhile. The treatments became so painful that I could not stand them. Doctor M. wanted me to go to Doctor Y. at Johns Hopkins Hospital, but I did not go at that time. In the meantime I took every kind of medicine anyone thought would be good for me. After quite a while I went to Doctor K. and he gave me practically the same treatment as Doctor M. I had to stop the treatment again, however, as I could not stand the pain it caused me.

"Sometime later, I went to Doctor F., of Washington, D. C. He examined me, taking an X-ray of the kidneys and bladder and cystoscoping the bladder, and pronounced my trouble as cystitis of the worst kind. He irrigated the bladder for a long time, without any noticeable improvement. He then put me in the hospital, where he opened the bladder, cleaned it out, painted it with iodine and put a tube in for draining, leaving it there for about six weeks. I could notice a little improvement for a short time, but then I began to get worse, lots of blood and pus being found now and then in the urine. I would have bad pains in my left side, and had to take hypodermics to get relief. Finally I had a bad spell with chills and fever, and, as Doctors C. and S. could do me no good, they sent me to Johns Hopkins Hospital for treatment under Doctor Y. He examined me thoroughly, using the X-ray, catheterized the kidneys, and washed the bladder every day. After being there two weeks, he did what they call a 'punch operation,' cutting a growth from the neck of the bladder. Five days after he operated, he sent me home. The next day I had a hemorrhage of the bladder, and could not pass the blood. Doctor C. was called in. He could not relieve me, but suggested calling Doctor F., of Washington, which we did. He used a syringe of some kind, and drew great clots of blood from the bladder, leaving a catheter in for several days. After I became strong enough to take the trip, I went to Doctor Y., of Johns Hopkins, twice a week for about a year. He continually irrigated the bladder without any improvement being noticed, so I discontinued the treatments. After a short time, he wrote and asked me to come and let him examine me again, as he was very much interested in my case. After the examination he wanted me to come back to the hospital and let him open the kidney, as he said they had found a little pus coming from it, but I did not go. After

*Read at the meeting of the Medical Society of Virginia, Maryland and District of Columbia, in Alexandria, May 21, 1924.

this I moved nearer Alexandria, and had Doctor K. attend me during several bad spells with chills and fever. Much blood and pus were passed with the urine all the time. When Doctor K. was taken sick I was suffering so badly that I decided to go back to Doctor F., of Washington. He kept me in the hospital for three weeks and washed the bladder every day using a large syringe to draw the water out of the bladder through a catheter. I think the syringe was too powerful however, as it started a hemorrhage. Afterwards I got a little better and left the hospital. Doctor F., of Washington City, said my case was the worst that he had ever seen, and he could not understand why the treatments did me no good. In the meantime, I had moved to Alexandria. In a short while I was taken with pains in my left side. Doctor L. was called in, but he could only give me temporary relief. After seeing me in several attacks he thought the trouble came from the kidneys and wanted to consult some other Doctor. Doctor M. was called in consultation, and it was decided that the kidney had to be operated on, but I did not consent. Upon having another hemorrhage of the bladder, I called in Doctor L. and Doctor M. The bladder being contracted, they could not pass the catheter. Finally the blood came, and they passed the instrument, leaving it there for a few days. They told me I should have my kidney operated on, or I would not live through many more attacks, but I could not consent.

"We called in Doctor K. and he took the case insisting that I go to Grace Hospital, Richmond, Va., under Doctor B. After being confined to my bed for eight weeks, Doctor K. got me strong enough to take the trip. My bladder at this time had a capacity of only one ounce. Doctor B. tried to cystoscope the bladder, but could not, as it was contracted so he could not pass the instrument. He began at once to wash the bladder, using a steel catheter. He X-rayed the kidneys and bladder, but it failed to show anything, except that it outlined the bladder as a little hard ball. After being in the hospital for a few days, one of my teeth began to ache. They had the dentist extract it, and an abscess was found at the root. They at once X-rayed all of my teeth, and found seven more with abscesses at the roots, all of which were extracted. The two that had been crowned about the time my bladder trouble first began had pus and the roots were black and decayed. Doctor B. continued to wash the bladder twice daily with salt and water. After each washing he injected a small quantity of B. B. culture in the bladder, leaving it there. At the same time he gave two Bulgarian tablets after each meal in a little sweetened water. After three weeks I was able to sit up, and was very much improved. At this time I weighed 125 pounds. After staying in the hospital for ten weeks, Doctor B. examined the bladder, and said it looked as though healing. He then sent me home for Doctor K. to treat. Doctor K. is giving me the same treatment, and, in connection with that, he injects a five per cent solution of Argyrol into the bladder twice a week, increasing the strength of the Argyrol each week. At this time there is no blood in the urine, and very little, if any, pus. I have gained 43 pounds, have a splendid appetite, sleep good, have no pain and feel fine."

Case II.

About eleven years ago there came under my observation a middle-aged man, an active, go-ahead business fellow suffering with gastro-enteritis. He had at that time, and at all times while under my observation, very little elevation of temperature. He averaged six or eight stools and sometimes as many as sixteen stools daily. His bowels were so completely from under his control that sometimes at night, during his sleeping hours, there would be an involuntary action of the bowels. This man's hours of work were very long, sometimes extending into the wee small hours of the night. He was rather careful in his diet: totally abstemious as to stimulants and tobacco, and not much of a meat eater, but as to other forms of diet he was a rather liberal feeder. On the mother's side of the family, he was the descendant of a very strong parent, but on the father's side the health was not so good. Other members of his immediate family were phenomenally strong. The family history is above the average. During the first three years of treatment, there would be times when treatment seemed to make marked improvement in the condition, and then the trouble would return with increased violence. About three years after the beginning of my treatment I requested that he consult a gastrologist This suggestion was acted upon, and for about two years the specialist's treatment was carried out without any particular improvement. Four years ago the man was stricken with broncho-pneumonia, and his life was despaired

of for some time. After the danger of the broncho-pneumonia had passed, the entire gastro-intestinal tract functioned so badly that the man was almost reduced to a skeleton, weighing 97 pounds, though he was five feet, eight and three-fourths inches tall. At this time, which was about three months after his recovery from the attack of broncho-pneumonia, he was sent to the country, and stayed there for three months with very little improvement. Five months later he was again taken down with fever, temperature 104,° this time an extensive attack of bronchitis. This lasted about three weeks. On recovering from this attack evidences of pyorrhoea were detected, though there was no evidence of cavities or painful teeth. X-ray examination showed abscesses at the roots of all the teeth. After having his teeth extracted, the patient's chest trouble not only cleared up, but the intestinal trouble of eleven years standing was entirely relieved with almost no medication, save Tonic of Syrup of Iodide of Iron, alternating with Tincture Chloride of Iron. The contents of stomach and feces were carefully examined and no causes of trouble were found; no hookworm nor evidences of tuberculosis were present. The stomach secretion was slightly lacking in hydrochloric acid.

This man is today doing a large amount of work and indulging in all varieties of food with absolutely no deleterious effect, his digestion and assimilation being up to the normal.

SOME REFLECTIONS UPON CERTAIN PHASES OF PREVENTIVE MEDICINE IN THE GROWTH AND DEVELOPMENT OF CHILDHOOD.*

By J. H. HIDEN, M. D., Pungoteague, Va.

When we speak of preventive medicine, we almost intuitively think of hygienic conditions, dietetics, immoral or imprudent conduct, climatic changes, occupational pursuits, geographical situations, environment, etc. Along with these, and intimately associated with them, we recall also the role of contagious and infectious diseases, and the pestilence of insect life. With all these, involving varied courses of study with their complex and complicated problems, we have only entered the threshold of preventive medicine. Other phases of the subject, perhaps even more intricate and complex, present themselves among which we find what may be called the automatic activation of the internal secretions of the body, with its sympathetic responses and correlative influences. Here we have problems which we are compelled to face: and in entering any discussion of this subject I wish frankly to state at the outset that the functions of the endocrine organs in their varied contributions for growth, physiological balance and development are imperfectly understood. This fact, however, should not deter us in our desire to grasp and utilize such facts as are now well known.

The Thyroid Disorders

Among the various endocrine disorders that we find in childhood, I wish to discuss those especially of the thyroid gland. This gland, as you all well know, has much to do with the retention and distribution of iodine as a nutritive substance for the system, and as a regulator in the physiological processes of metabolic activity. Indeed, the action of the thyroid has been spoken of as "the fan for the fires of metabolism." In its action, then, we often have two extremes in its pathological work; namely, over-activity and under-activity—the former found in Graves' disease (hyperthyroidism), the latter in myxedema (hypothyroidism). In Graves' disease, it is said, "the fires of metabolism burn high;" but in myxedema "they burn low." When we keep this before us the syndrome of each condition can be easily retained in mind, if not entirely digested in thought. For instance, in Graves' disease, or exophthalmic goiter, we have thyroid enlargement, protrusion of the eyes, tachycardia, restlessness, alertness of mind and body, insomnia, irritability of temper, often a good appetite, but disturbances in intestinal motility with increasing loss of weight. In other words when you think of Graves' disease you may express it in two words—*automatic motion*. On the other hand, in the syndrome of myxedema (hypothyroidism) we have usually absence of thyroid enlargement, no protrusion of the eye, but often retracted eye with narrow, slit eye-lids, swollen hands and face, skin dry, coarse and often times waxy in appearance, hair lacking in lustre and often falling out, appetite poor, digestion often disturbed with abdominal tympanites and obstinate constipation, yet often gain-

*Read before the Walter Reed Medical Society, at Newport News, Va., May 14, 1924.

ing in weight with tendency toward obesity; given to sleepiness, dull and stupid in appearance, slow in movements and inattentive, and slow in heart's action. This syndrome may also be summed up in two words—*general sluggishness.*

Now, when we have the syndrome of either of these conditions fully developed, the diagnosis of each can be easily made, but in cases in which we have the disordered functions of two or more endocrine glands, the diagnosis may become far more puzzling, and even more so, when the patient is also suffering from other sources of an entirely different nature. Moreover, the mild forms, or, what we may call the intermediate state of either overactivity or underactivity in endocrine derangement, when combined with other pathological processes, as toxemic disorders, pyogenic absorption, deficiences in diet, etc., furnish additional difficulties in each given case. If these observations are correct in their application to such disorders in adult life, how much more difficult is the problem of an accurate diagnosis of the same pathological conditions when found in the various ages of childhood. Here we have to deal with the anatomical structures in their undeveloped stages, the nervous system in the most delicate shades of sympathetic response to every sort of psychological or materialistic irritation; with the reflexes from almost any anatomical source easily exaggerated, with the emotional side of nature almost on a "hair-trigger," with the correlative relations of the internal secretions in the closest sympathy with the easily disordered digestive tract, each often acting and reacting upon the other as to appear to be working in a vicious circle. Add also to all these things the fact that we are often dealing with a patient with whom nearly every sort of external and internal lack of adjustment is received with an exaggerated degree of repulsiveness, and you need not be surprised that an uncertain diagnosis is often our lot. Notwithstanding all these difficulties in dealing with our subjects, the thyroid disorders in children, as well as in adults, are gradually becoming better known, and their causes, though numerous, are becoming more and more apparent.

Now in dealing with these disorders, I wish to confine myself almost entirely to deficiency of function—a *thyropenia.* This condition is quite common, and far more prevalent than is generally supposed. Many cases develop and go on suffering for years with a mild form of the disorder without the real nature of the trouble being even suspected. I ask the question: why should this be? My answer is, most of us study thyropenia in its well developed form. Nearly all the medical books give it to us in the form of an advanced myxedema, and in actual practice, we seldom see it in this form. Again, when we do see a thyropenia it is not only in a milder form than we are expecting to find, but it is often mixed with something else.

Thyropenia with other endocrine disorders.—In making an effort to diagnose a thyropenia we are often confronted with symptoms of parathyroid disturbance. This is especially so in cases of glandular insufficiency; and just here it may be said that parathyroid overactivity is very little understood; but that its under function is becoming quite familiar to the student of endocrine disorders. However, when this disorder is associated with a comparatively mild form of a thyropenia, the symptoms of each may serve to obscure the real nature of the case. For instance, here is a little girl about 5 years of age, rather dull in appearance, inclined to obesity, face pale and sallow, more or less waxy looking and expressionless; hair without a normal degree of lustre, eyes dull and sleepy; hands and fingers rather short and clumsy, teeth poorly developed; abdominal tympanites with obstinate constipation. If we stop just here, with the absence of any of the acute febrile diseases of childhood, we would have very little difficulty in making a diagnosis. But let us now slightly modify this syndrome, making it a little less pronounced and add to it frequent, painful muscular contractions in the little patient's extremities along with spasmodic disturbances in the gastric region, and the picture looks different, and the diagnosis becomes less easy. In such cases the condition is likely to be taken as the natural result of mere errors in dietetics. And in the light of McCarrison's discoveries in the relation of food nutrition to the organs of internal secretion, this latter view may be in a measure correct, but it is by no means an accurate or comprehensive view of the above problem.

This is no imaginary picture. I have had in my own practice within the last year just such a case. The syndrome of a thyropenia was fairly well developed, almost classical, if you only eliminated the symptoms of the gas-

tric region. But these latter symptoms seemed to throw a veil over the real nature of the case in the eyes of some two or three excellent physicians. They had all concluded that the gastric spasms were the result of dietetic errors, and careful attention for weeks was given to the little patient's diet, all without improvement. When the case was turned over to me with her history, I was almost immediately impressed with the syndrome of thyropenia; but these gastric symptoms seemed a little puzzling until I examined the mouth and saw how the teeth were giving up their enamel, as they often do in parathyroid deficiency when the general system is suffering from calcium poverty. Considering the history of the case and the varied symptoms as a whole, upon the theory of probabilities, my diagnosis was made. She was suffering with pluriglandular deficiency, involving both the thyroid and parathyroid glands, and the treatment was directed with the view of supplying the necessary ingredients that were lacking in the deficiency of these internal secretions. She was given a lactated pepsin mixture with small doses of iodine, t. i. d. after meals, and an hour later small doses of calcium iodide. In addition to this, small doses of calcium lactate were given morning and night. Within a short time the symptoms gradually, but steadily improved, and now, after four months' treatment, mostly of very small doses of calcium iodide, she has completely recovered, is active, sprightly, happy, with the disappearance of all suggestions of endocrine disorder—yes, a perfect, beautiful specimen of health. This case was especially interesting, not only from a scientific standpoint, but in the restoration of great happiness to a most distressed family. Other cases of like conditions and of similar import could be given with approximately the same degree of success, but the time allotted me does not allow me to continue such illustrations.

It may be well to add here, however, that many of these conditions of endocrine disorders are of a chronic nature, and may be primary or secondary. Moreover, they may be organic disorders, or merely functional or sympathetic, playing the part of a hormonic response in the morbid processes of the internal secretions. This being the case, I wish to emphasize that many cases of thyropenia need a long course of medical care, and ought to be seen at stated intervals according to the nature of the case. To dismiss a case because there has been decided improvement, and the family is well satisfied with the results is often a great mistake. I have reluctantly done this on several occasions. Some of these little patients had improved wonderfully with six or eight weeks' treatment, and were dismissed simply because no persuasion could convince their parents that these children needed further medical attention. Some of these little patients soon drifted back to their former condition, and seemed to come to a standstill in growth and development for even as high as two or more years. When we are sure of our diagnosis, this matter ought to be impressed upon the child's parents, even at the risk of the layman's suspicion that we are playing a game of commercialism over a child, already restored to perfect health.

Before leaving this phase of my subject, let us consider a little further these endocrine disturbances of the pluriglandular type. I refer to those with parathyroid involvement. Many of these are suffering with a latent form of parathyroid deficiency in combination with a mild form of thyropenia, and such cases may never develop the classical syndrome of tetany. Indeed, the syndrome of tetany may be described in many cases as a violent outcry of nature for calcium nutrition: and this nutrition in the latent cases above mentioned, though in a measure decidedly deficient for growth and health, is still not at so low an ebb at any time, as to usher in the convulsive symptoms of calcium hunger. In these cases a careful examination of the child's teeth will often lead us to a more rational view of the case in question. For instance, when we find defective teeth with parallel lines or hole-like depressions upon the incisors or canines, we should carefully consider these as suggesting parathyroid deficiency. Moreover any evidences of pyloric stenosis, or gastric dilatation in such cases may also give us additional light in arriving at a correct view of the case. These evidences, however, may not still furnish the classical syndrome of tetany. Dr. Lewellys Barker has cited from his own practice three endocrine cases of gastric dilatation—all three sisters—and only one of these, he states, developed the characteristic symptoms of tetany. Returning to the condition of the teeth in these endocrine cases, I wish to say that this phase of my subject is attracting wide attention in medical circles: and, I may add, if we

could acquire a more perfect understanding of the formation and preservation of the teeth in their relations to the endocrine secretions, the digestive apparatus and the alkali balance in the body fluids, we would make a great step forward in obtaining a keener insight into the shifting changes of these morbid conditions of endocrine disturbance. Dr. George Weaver, professor of pathology in Rush Medical College, has recently given a striking contribution to this dental phase of the subject. In this discussion he speaks as follows: "McCarrison proves conclusively that food deficiencies produce a definite action on the endocrine apparatus, and it is through this apparatus that these changes in the teeth are brought about. As long as the enamel remains intact, there can be no caries. Enamel, in health, progressively hardens as life proceeds. This hardening is due to the progressive laying down of lime salts, taken from the body store of ionic calcium. This store is, in health, equivalent to the need of the individual at the time, and is preserved by the endocrine apparatus, which is also a fixer of lime salts in the teeth. If the endocrine apparatus is thrown out of balance in the direction of calcium starvation, this reserve store is diminished and fixation in the lime salts in the teeth is interfered with. An upset in endocrine balance, youth and pregnancy will contribute toward calcium starvation. Calcium starvation will lead to a diminished calcium index in the saliva, with lessened alkalinity of that secretion, thus directly leading to caries." In conclusion he states: "Endocrine derangement will account for all the conditions leading to dental caries, whether they are diet, lack of vitamins, altered salivary secretions or what not."

Another ray of light comes from MacCollum and Vogtlin on this subject of calcium metabolism. In a series of experiments upon dogs that had had their parathyroids removed, and in consequence had developed tetany, it was found that these convulsive attacks of tetany could be easily controlled and entirely stopped by the administration of calcium acetate and calcium lactate. These experiments led these men to "conclude that the parathyroids are actively engaged in controlling the metabolism of calcium in the body." (Barker).

In conclusion, let me emphasize the following points: (1) Some degree of thyroid deficiency is very prevalent among children, and we should never wait for the syndrome of myxedema before detecting this condition as a factor toward ill-health. (2) When looking for symptoms of thyroid deficiency we should look also for other disturbing elements of endocrine nature, as some degree of a pluriglandular disorder is likely to be found. (3) It is well to bear in mind that various phases of the pluriglandular disorders are often found with that of the thyroid—such phases as involve the hyperplasias of the lymphoid structures (tonsils, cervical glands, etc.), and that these often exercise a reciprocal relationship with each other, thus obscuring the primary factor in the etiology of the disease in question. A practical point, moreover, should be noted here that the same treatment which we use for simple thyropenia, that is, thyroid extract or other forms of the iodine treatment, is also more or less beneficial to these more complex forms of thyroid disease. (4) We should always bear in mind the close relationship of many of these cases of thyroid disorders with the digestive tract. According to Dr. Lewellys Barker, their relations are so responsive that at times they react upon each other in a vicious circle. Moreover, when the two disorders are associated, small doses of iodine added to some appropriate digestive agent, as a therapeutic measure, are doubly indicated. (5) In reviewing the conflicting literature as to the exact part the parathyroids play in the metabolic processes of the body, let us remember that in cases of parathyroid deficiency modern investigation tends to show that such cases are suffering with lack of calcium support and assimilation. This view is also well supported by the beneficial effects of calcium therapy in controlling the convulsive seizures of tetany, and in its capacity to check the chronic disintegration of caries in the teeth.

Finally, the subject before us is one of great import. No one knows when we correct these morbid disturbances in the growth of little children how far reaching our labors may be. Let us rise to the occasion, and give our best thought and talent to this vitally important subject, and God will crown each one of us with the richest of blessings—a life of great usefulness.

Bibliography.

Geo. H. Weaver: Practical Med. Series, 1923.
Llewellys Barker: "Classical Endocrine Syndromes," N. Y. Med. Jour., March 2, 1921.
McGuire: "The Profit and Loss Account of Modern Medicine"—Hypothyroidism.
Ochsner: General Surgery (Practical Med. Series), 1922.

Ryerson: Othopedic Surgery (Practical Med. Series), 1922, page 137.
Fantus: Practical Med. Series, 1922, pages 98-99.
Barker: "Endocriné Functions and the Digestive Apparatus."
R. M. Olin: "Iodine Deficiency," etc. J. A. M. A., April 26, 1924.

EPIDEMIOLOGICAL STUDIES OF TYPHOID FEVER IN VIRGINIA DURING 1923.

By GEORGE C. PAYNE, M. D., Richmond, Va.
Epidemiologist, Virginia State Board of Health,
and
HENRY P. CARR, M. D., Richmond, Va.
Field Staff, International Health Board.

The data reported in this paper were obtained in case studies of typhoid fever investigated by the Bureau of Epidemiology of the Virginia State Board of Health from June 18, 1923 to December 31, 1923. The cases occurred in small groups which could not be designated as epidemics. Frequently they did not constitute an unusual amount of typhoid fever for the season and community. Some of the groups involved single families, two of them were in institutions, one involved a series of cases scattered over four counties. Nearly all of them occurred under rural or near rural conditions of living. The results of the studies are published because it is believed that they point to important factors in the spread of rural typhoid fever which are often overlooked, or are not given sufficient weight. We believe that they constitute a representative sample of the typhoid fever cases which occurred in Virginia during the season of 1923. The authors wish to acknowledge their indebtedness to Dr. H. McG. Robertson, of the United States Public Health Service, Mr. Aubrey H. Straus, Director of Laboratories of the Virginia State Board of Health, and to Dr. W. A. Brumfield, of Blacksburg, for carrying out some of the investigations on which this report is based and to the many physicians who gave such willing help in the study of their cases.

Nearly all of the studies of this kind which have been published involve urban conditions, but numerous studies have been made and published which take up the question from the point of view of the search for carriers. Notable work of this character has been done in Minnesota and is reported by Chesley.[1] He records the identification of sixty-nine carriers within three years by the routine work of the Minnesota State Board of Health. A more intensive study of rural communities was undertaken by Norment[2] who studied the endemic foci of typhoid fever in fifteen communities in two counties in Maryland. These were classified with reference to the personal source of the infection, from recognized cases, unrecognized cases, or from carriers. In a study of fifty-seven cases, Norment was able to locate the sources of thirty-two, or 56.1 per cent. while the sources of twenty-five, or 43.9 per cent, were undetermined. Nineteen of his cases, or 33.3 per cent, acquired their infection from demonstrated carriers. Norment concludes that contact with carriers is the most prolific source of rural typhoid and that contact with unrecognized cases is the next most important source.

The studies here reported had as their objective in each case the location, not simply of the infected vehicle of infection, but of the personal source from which the infective material came. The methods used were those which are used as routine by all health officers in the investigation of cases of typhoid fever, but special stress was laid upon the previous occurrence of typhoid fever in the community and especially in the family and among the associates of the cases investigated. Ample provision was made in every investigation for collecting specimens of feces for culture from all persons who gave a history of frequent association with typhoid fever in previous years. One hundred and nineteen cases were investigated in twelve separate studies.

Absolute proof of the source of a case or an epidemic of typhoid fever is not often obtained. In none of our studies were we able to recover *B. typhosus* from any article of food and to say we had a complete chain of evidence that the infection was carried to the patients by that particular article and by nothing else. Our conclusions had to be reached on the basis of evidence which was less complete. It was frequently shown that a given article of food had an opportunity to be infected: the article in question was consumed by certain persons, and among them a number developed typhoid fever; no cases developed among persons who had not consumed the article of food in question. Such a chain of evidence was held to incriminate the article, provided there were no other facts

1. Chesley, A. J., Burns, H. A., Greene, W. P., Wade, E. M., Three Years' Experience in the Search for Typhoid Carriers in Minnesota. Jour. A. M. A., June 23, 1917, vol. 68, p. 1882.

2. Norment, R. B., Jr., Specific Sources of Rural Endemic Typhoid. Public Health Reports, vol. 37, pp. 2094-2108. Sept. 1, 1922.

pointing to another vehicle for transmitting the infection.

As regards the infecting agent, our cases were classified as follows: milk, other food, water, direct contact, poor sanitary surroundings. Under direct contact were placed those cases who were in such intimate contact with known cases that opportunities for the transfer of the infection were numerous. All of the cases placed in this group, except one, were women and children. Those persons in whose cases the blame was placed on poor sanitary surroundings lived in crowded communities where privies were either absent or were grossly inadequate. Flies were abundant in every instance and were probably the usual agents for the transfer of infection to food.

The classification of the infecting agent on this basis was as follows:

Total cases investigated	119	
Infection received in milk	37	31.1%
Infection received in other food	1	0.8
Infection received in water	13	10.9
Poor sanitary surroundings	14	11.8
Direct contact	24	20.2
No solution	30	25.2

In regard to the personal source of the infection. the cases were classified as follows:

Total cases investigated	119	
Infected from known cases	74	62.2%
Infected from carriers	15	12.6
No solution	30	25.2

If this series of 119 cases may be taken as a fair sample of the rural typhoid fever in Virginia, it appears that it is possible to trace the origin of more cases in the relatively stable rural population of Virginia than under circumstances existing in other states from which similar reports have been made. It is not surprising that the most important source of infection was found to be in known cases of typhoid fever. The fact that 12.5 per cent of the cases received the infection from carriers is less than the estimate of Norment for two Maryland counties, but both series of cases are too small to be of value for comparison. The striking fact is that, in two independent series of cases in these two states, such a high proportion have been found to be traceable to proved carriers.

It appears to us that the importance of milk on the farm as a vehicle for carrying typhoid infection has not been sufficiently stressed. More than 30 per cent of our cases apparently received their infection in milk. In more than half of these cases the milk was infected by persons with typhoid fever who were still able to do a little work. The milking was given to them as a light task. In one family a sick boy came home from the city and milked for a few days. Seven of his family were infected almost simultaneously. In another family a woman became sick with typhoid fever which she apparently contracted from infected cake prepared by a carrier. The carrier, a neighbor, wished to assist the family in their trouble, so she helped with the milking during several weeks following. The result was the infection of thirteen out of the fourteen persons in the family, including a daughter and a son-in-law who came from another state. Two deaths occurred in this small outbreak. The prevention of accidents of this kind can come about only by prolonged education of rural communities in the dangers which are involved in allowing sick persons or carriers to handle milk or food.

Summary

1. One hundred and nineteen cases of typhoid fever were investigated in various parts of the state.

2. The vehicle which was found to have transmitted the infection in the greatest number of cases was milk.

3. The number of cases which were traced to known carriers constituted 12.5 per cent of the number investigated.

Conclusions

Effective work in the prevention of typhoid fever can be done by searching for the personal source of each infection, as well as the vehicle which transmits the infection. Carriers play such an important part in initiating rural typhoid fever that they must be sought out and prevented from infecting food, in order that full benefit can be obtained from improved sanitation.

NOTE.—The investigations included in this report were conducted by the Bureau of Epidemiology of the Virginia State Board of Health and were supported in part by the International Health Board of the Rockefeller Foundation.

A PRELIMINARY REPORT ON THE USE OF THE SCHICK TEST ON 1,482 CHILDREN AND THE IMMUNIZATION OF 1,011 CHILDREN BY THREE SEPARATE DOSES OF THE TOXINE-ANTI-TOXINE MIXTURE—ONE C.C. LETHAL DOSE.*

By H. M. WALLACE, M. D., Greenville, Va.
Health Officer.

In the autumn of 1921 a severe epidemic of diphtheria appeared in the Beverley Manor Academy, five children being stricken in one day and six being taken ill on the next day. The cases were isolated and treated by their several physicians. So far as was possible the contacts were isolated and were given 1,000 units of antitoxine as a prophylactic, while, with the assistance of Dr. A. F. Robertson, the other children in the school were given the Schick test and all positive reactors were immunized. Five more cases of diphtheria developed in the school; three after the giving of the Schick test, one after the administration of one dose of toxine-antitoxine and one after two doses of the toxine-antitoxine had been given; but all of these cases were among the positive reactors. The next year the Schick test was given in the schools at Fishersville, Churchville and Mount Sidney, where serious epidemics had been seen, and all susceptibles were immunized. During the following year the same procedure was carried out in the schools at Middlebrook and Newport. The policy has been to make a complete job in each instance; that is, to require all the children to be subjected to the Schick test and to immunize all of the positive reactors.

From observation of the results in these instances, the following conclusions have been reached:

1. It is better that the Schick test be given to all the children in a school, and only those showing a positive reaction be immunized, as this is more scientific than to administer the toxine-antitoxine mixture to all the subjects. If the test material be given properly—that is, between the layers of the skin—the reaction will, in my opinion, be very accurate and reliable. I have frequently observed that when the lower layer of the skin had been accidentally punctured and the characteristic blister not obtained, the reaction would fail to appear while if a proper blister be raised in another site, the reaction would be clearly apparent.

2. It has been noticed that if the first dose of the toxine-antitoxine mixture be administered into the subcutaneous tissue, a reaction will appear in susceptible cases which will indicate the necessity for continuing the treatment. This phenomenon was observed in quite a number of our children, but as only positive cases were treated and as the reaction from the first dose of toxine-antitoxine was by no means constant, it appears of no value as a diagnostic procedure.

3. Since it is a well recognized fact that all children are not fully immunized by a standardized dose of toxine-antitoxine, it seems that an application of the Schick test after the lapse of a year from the time of immunization would be the most important use of the test. In the schools in which this work has been done, all of the children have been required to take the test, and if positive results have followed, immunization has been enforced. As a result, in all of the immunized communities the children under school age have been totally free from infection,—no casas at all occurring in them. Judging by the reports, in communities where only such limited numbers of children as voluntarily submitted to immunization were treated and in which carriers and mild cases were not eliminated, there was no diminution whatever of infection among children under school age.

The people of Augusta County have been educated to having the Schick test made, and we find that it appeals somewhat to the sporting proclivities of both children and parents. They are willing to take the chance of being among the forty per cent of immunes, and should they prove to be susceptible, there is quite a rivalry among the children as to who will show the most pronounced and characteristic reaction. When it is clearly demonstrated to both parents and children that susceptibility exists, it is rarely found that they are not glad to take the treatment, but they naturally balk at what is probably unnecessary medication.

That immunity or susceptibility runs in families, including near relatives, was observed from the first work in our schools. This is now so well recognized that I deem it necesary only to mention it in passing. Untoward happenings have been very few. There have been no abscesses and no infections of arms, nor have there been any serious inflammatory

*Read at the meeting of the Medical Association of the Valley of Virginia at Harrisonburg, May 29, 1924.

reactions. There have been two cases in which an eruption resembling psoriasis occurred following treatment with other serums. One of these was rather serious, but recovery was rapid and complete.

My conclusion is that the work is very well worth while and should be continued and extended. I think that using the Schick test first and only administering the toxine-antitoxine mixture to positive reactors is preferable to giving this latter to all cases indiscriminately, and that requiring all children in the schools where the test is applied to take it and the immunization treatment if needed, to eliminate as many carriers and unrecognized cases as possible, is more than justified. I think that pre-school-age children may well be given the toxine-antitoxine mixture without the previous Schick test by their family physicians because of the high percentage of susceptibility among very young children.

ACQUIRED CHARACTERS AND HEREDITY.

By CASPER L. REDFIELD, Chicago, Ill.

When the war broke out in 1914, England sent over to Belgium such soldiers as she had available, and commenced to raise a new army of millions of men. As fast as these men were enlisted they were sent into training camps. The military authorities under Kitchener said that these recruits could be taught all that a soldier needed to know in about six weeks, but they were not sent to the front at the end of six weeks. They were kept in camps and given strenuous physical training for more than a year before being sent out to fight. And they were thus kept in training, in spite of the fact that such training was expensive, and in spite of the fact that there was desperate need of reinforcements in Belgium all of the time. Kitchener and his aids simply refused to permit these recruits to go to the front until they had had more than a year of training.

At that time Kitchener was 64 years of age. He had been educated in the Royal Military Academy, and had behind him all of the military experiences of the past. He saw service in the Franco-Prussian war of 1871, and later had extensive military commands in Egypt, the Sudan and South Africa. He well knew what soldiers had to stand in war, and what was necessary to enable them to stand it.

When Canada entered the war she also gave her soldiers more than a year of intensive physical training before sending them across the sea. And when the United States joined the others, we also did the same thing. But we did some additional things. We had our medical men examine the recruits as they were enlisted, and watch these millions of men under this system of training. The medical men were astounded at the results they saw. When the American Medical Association next met, they passed a resolution recommending "universal military training for all men for the mental and physical benefits obtained thereby." That recommendation was not for military purposes. It was for the "mental and physical benefits" which came from training.

Early in 1923, William J. Herdman, of Toronto, Canada, addressed letters of inquiry to the National Research Council, the Eugenics Record Office, the Bussey Institution for Biological Research, to some other places, and to certain prominent biologists. These letters recited what had been done in England, Canada and the United States in the way of training soldiers, and referred to the recommendation of the American Medical Association in regard to the mental and physical benefits. The letter then put the following question:

"Has there been any scientific research on man or the lower animals to determine whether such benefits are inherited by offspring?"

The letter then added a paragraph explaining the distinction between the effects produced by exercise and the effects produced by the environment, and closed by saying: "If there are any published records of investigations. * * * I would like to examine those records."

The reply from the Bussey Institution said:

"The effects of training would come in the category of characters which biologists call 'acquired characters' which have been shown by the investigations of Weismann and many others to be not subject to inheritance."

Now observe that this letter does not say that this matter had ever been investigated. It simply said that "training" would come in the category of things investigated by Weismann. The work of Weismann referred to, consists in cutting off the tails of mice, and then breeding those mice to see if the offspring would be born with short tails. The reply from the Bussey Institution therefore amounts to a statement that training men to get strong muscles in their arms and legs comes in the same class of things as cutting off those arms

and legs. If that piece of scientific information had been conveyed to Kitchener in time he could have found it cheaper and easier to cut off the arms and legs of his raw recruits than to train them.

The reply from Princeton University said:

"I am sorry to have to tell you that there has been no satisfactory research of this character."

That reply does not say that there has been no research on this subject. It simply says that there has been no "satisfactory research." It is one of the peculiarities of a considerable number of men in the biological field that nothing is satisfactory to them unless it confirms their preconceived opinions. That that is the situation here is evident from the statement itself. The statement that there is "no satisfactory research" admits that there is some research which is not satisfactory and it also admits that there is nothing to support this opinion.

The reply coming from Johns Hopkins University referred to my work, to some experiments by Kammerer reported in a German book and said to relate to the "inheritance of environmental effects," and to some minor items. When Mr. Herdman wrote that he "was looking for the results produced by the actions of the animal, and not those produced by actions of the environment," a second letter from the University stated that there was "nothing to add that would help you."

It will not be necessary to follow through the other replies to the question asked. It is sufficient to say that not one of them pointed to any record or evidence of any kind to indicate that the mental and physical benefits coming from training are not inherited. The common statements to that effect had their origin in the fact that biologists have confused acquired characters with effects produced by the environment. Acquired characters are powers which have been developed by exercise. Effects produced by the environment are mainly, if not exclusively, injuries of some kind. The damage produced in a muscle by a cut or a bruise is not in the same category with powers developed by exercise.

A man may become an athlete by physical training. What kind of an environment will make an athlete out of him if he sits still? Obviously, none. And obviously it is the exercise and not the environment which produces strong muscles. If, of two things, one will accomplish a definite result and the other will not, it is evident that these two things are not in the same class. Do not permit anyone to argue that acquired characters are not inherited simply because effects of the environment are not inherited.

Getting strong muscles by exercise is a process which is physiological, and consquently biological. The fact that the military authorities kept their soldiers for more than a year in training camps shows that those authorities have certain biological information not possessed by the biologists themselves. The fact that more than a year of strenuous training was consumed in getting a desired result shows that the development of an acquired character is a gradual process involving time. In the hospitals of France it was found that an American soldier of a year's training and a German soldier of the same length of service were about equal, but that German soldiers of four years of service were much tougher animals. This also shows the effect of time in acquired characters.

The process of physical training is a process of building up a store of energy within the system. This energy is the thing that does work. The man who has been exercising his muscles for years can do more physical labor in a given time than can a man who has been following a sedentary life. This energy is what fights disease, as is seen by the fact that if a man gets his energy supply exhausted by over-exertion he is more liable to be attacked by disease than when not so exhausted. Also, the process of fighting disease wears down a man's energy supply as does long continued over-exertion.

The energy which a person gets into his system by exercise is the thing which keeps him alive, and if you build up your energy supply by proper exercise you will live longer than if you fail to do that. One of my investigations into this matter consists in taking about 200 families of four or more children and combining them into a composite family of 1,105 persons. They were New England families, whose parents lived in Colonial days. These parents were mostly farmers, with carpenters and other tradesmen among them. While men of this kind do not have their powers built up by special training, they do have their muscles pretty well developed by hard work continued for many years. In such a process, the energy supply in the system is

built up through the years and is manifest in the form of endurance. The following table shows that the later children of such parents live longer than the earlier ones:

EXPECTANCY OF LIFE AT AGE OF 25.

Ages of Fathers	Number of Persons	Average age at Death
Under 25	83	62.63 years
25 to 29	233	65.20 years
30 to 34	266	65.28 years
35 to 39	199	65.41 years
40 to 44	165	68.02 years
45 to 49	88	66.28 years
50 and over	71	70.27 years

A similar thing may be found in the trotting horse. There are a few cases of stallions of that breed living to be 30 or more years of age. When we examine the histories of those horses we find them to have been horses which were worked hard at the trot—many of them being race horses at a time in horse history when it was uncommon to send stallions to the race track. The later ones were practically all sons of horses which had been raced. Condensed, the record shows that horses trained and raced live longer than their brothers and sisters not trained and raced. And the offspring of horses trained and raced live longer than the offspring of their brothers and sisters not trained and raced.

The acquired characters coming from physical education not only add to the length of the lives of those who do the acquiring, but they add to the length of life of offspring.

About twenty years ago an industrious statistician made a list of all of the stallions of the trotting breed which were full brothers and were also sires of offspring capable of trotting fast enough to become standard performers. I took from his list all of those cases in which one brother had been trained and raced, and the other brother had not been raced, though a few of them had been trained. I put these into a new table to see if a horse was a better sire of trotters by reason of being trained and raced.

PERFORMERS SIRED BY FULL BROTHERS.

88 brothers with race records	2963 Performers
96 brothers without race records	963 Performers

This table shows that a horse is much more improved as a sire of fast trotters if he is trained and raced than if he is not so developed, but it does not tell the whole story. Of two horses, the one which goes into the breeding ranks at three or four years of age will get a more numerous progeny than the one which does not get there until eight or ten years of age. Yet the brothers which had the fewer progeny had more than three times as many which were good enough to become standard performers.

In 1825 a young hunter named Laverack bought a brace of setters, Ponto and Moll. After they had become old in service he bred them for the first time and got new animals to take the places of the old ones. After this second generation had become old in service he bred brother and sister together to maintain his supply of dogs for hunting purposes. He was not a breeder and bred his own dogs solely for the purpose of maintaining his supply of hunters. All of his breeding was in-breeding. The thing he did was to give each generation of animals an excessive amount of training before breeding them, and the character of training he gave them corresponded exactly to the kind of training given our soldiers before sending them to the firing line. After forty years of that system, Laverack had the best setters in the world.

Laverack's in-bred setters crossed on another strain of well-developed setters became the progenitors of the English setters in America. I traced the lines of descent from that combination for another forty years to the champion performers in the early years of this century. Those animals used by breeders for propagating this valuable stock did not become the progenitors of champions. Those champions were descended from branches used principally for hunting and only rarely for breeding. And the average age of the sires and dams in the pedigrees of these champions was about twice what it was in the average of the breed.

1542 *Monadnock Block.*

PSYCHOANALYSIS—A CRITICISM AND EVALUATION.

By GRACE BRYAN ROLLINS, A. B., Richmond, Va.
Junior Medical Class, Medical College of Virginia.

In undertaking to consider a subject which is so well known, of so great renown, which has caused an almost unbelievable amount of interest among all classes of peoples, and finally which is so unique in itself, I think some consideration should be paid to its origin and at least a few comments be offered about the originator.

It seems fitting that such a unique system of Philosophy (if we may give it such a dignified name) should originate in the quaint old city of Vienna, along with other sinister ideas,

the latest of which is Steinach's rejuvenation operations. The real origin of Psychoanalysis depends not upon Sigmund Freud, but rather upon Breuer, also of Vienna. The thesis of Breuer was that the symptoms of hysterical patients depend upon impressive but forgotten scenes in the patient's life. It was, however, Freud who took this idea and developed it into what we are accustomed to look on as "Freudian Psychology." And in truth it may be called "Freudian Psychology," for there can be no doubt as to the fact that it was Freud who took the ideas of Breuer and developed them into real Psychology. What we know today as Freudian Psychology is purely Freudian Psychology. In Europe several branches have sprung from the real trunk, but in America it seems to have bred true to Freud.

Freud himself seems to be a very peculiar man. He states that during his practice in Vienna when he was forming his system of Philosophy (as some of his followers would call it), he refrained from coming in contact with the best thoughts of the day on his chosen subject in order that he might be the better fitted to interpret what he saw in an unbiased way. Secluded in his clinic in Vienna he worked out his system from his own observations, aided by the help of his imagination. In the year 1902 there crowded about Professor Freud in Vienna a goodly company of young doctors who wished to learn something of the new theory of Psychoanalysis which was already at that early date becoming famous. From that time on Psychoanalysis, or Freudian Psychology, began to spread. By 1907 it was felt that a conference ought to be called for the furtherance of the new science. This successful conference was followed by another in 1910 and still another in 1911. About this time Professor Freud felt that he was getting too old to continue to act successfully as the central figure and teacher as he had always done in the past, and hence he passed the reins of leadership over to his illustrious disciple, Dr. Jung. Now, with the spreading of the science and the active workings of his able disciples they too came to have some ideas about it. As I said before, Freud is a peculiar personage. Nowhere could this be better brought out than in his *history of the psychoanalytic movement.* In this he shows clearly that nothing can be Freudian Psychology except that which has been originated by Freud. Nowhere in his whole thesis does he acknowledge that any valuable contribution has been made to the science except by himself. In a few instances discoveries have been contemporaneous, but at no time does he acknowlege priority; and when priority has been established, he does not acknowledge the merits of the ideas offered. Such was the condition when the last Psychoanalytic Congress met at Munich in 1913. Jung presided over the meeting. Freud had for several years been slightly in the background. He had already several years ago broken off from Ferenczi, of the East Austrian School. Now he was going likewise to break off from the Zurick school. This meeting was to be historic. Freud did not approve of many of the things which were said and done, although they received the approval of the President of the meeting, Dr. Jung. But Freud was still looked upon as the father of the science. Hence when he raised a storm of objections, the congress dissolved and with it vanished the hope of ever establishing a united school of psychoanalysis. The Congress of Munich of 1913 was the last meeting of international importance of the Psychoanalysts. But this was not the end of psychoanalysis by any means. Today it is known and practiced in almost every civilized country. Brill's work in this country is widely read. Translations of Freud are accessible to the laity, not only in bookstores, but even in the most of our public libraries. Men like White and Jelliffe give their whole life to the subject. It is especially read by those people who are slightly abnormal or who have had to repress certain desires unduly. But let us now turn from this brief history of the Psychoanalytic movement and consider Psychoanalysis itself.

The fundamental principles of Freudian Psychology are two: (1) That nothing mental happens purely by chance; and (2) That the mental processes can all be explained by scientific laws involving *psychological terms only.* The first of these principles is merely an outcome of the second; for if mental processes can be explained by scientific laws involving psychological terms only, then it necessarily follows that nothing mental happens purely by chance. As to the first of these principles, men have for a long time been trying to correlate the physical and the psychical. But in the second we find something new and startling. Hence in this thesis we are pri-

marily interested in the second of these principles.

In starting into this difficult subject it is necessary at least to make clear to ourselves a few terms. In the first place, we are to understand that personality may be defined as a collection of unified complexes (ideas, emotions, memories, desires, etc.) existing harmoniously together. A thought complex is a system of ideas or associations with an especially strong emotional tone. Suppose a man is a baseball fan. The interest which he attaches to baseball might be called his "baseball complex." When such a complex comes into conflict with another complex, then we have consciousness. But if the two complexes are wholly incompatible with one another, one of them must get into the background. This is done in a variety of ways: (1) By rationalization.—In most instances we build up a system of reasoning which may be logical or not logical, but which is sufficiently so to satisfy the mind of the individual, so that one of the conflicting complexes may be put out of consciousness and allowed to remain in peace in the subconscious. For instance, a man may know that he ought to attend to his business and not go to a baseball game, but he will go to the baseball game and rationalize the two conflicting complexes by saying that by going to the baseball game he will be made much better fitted for his work and hence can get as much accomplished as if he did not go at all, if not more. The more logical these rationalizations seem to the individual, the more peacefully will the repressed complexes reside in the unconsciousness. (2) By repression.—When, however, it is impossible for the individual to originate a sufficiently logical reason for choosing one or the other of the complexes, he will then deliberately *repress* one of them and hence sow the seeds for an emotional conflict. (3) By condensation.—This means that one symptom may represent one or more independent unconscious wishes. (4) By dissociation.—Every complex which is repressed has repressed along with it a certain amount of energy, i. e., the energy of interest which initiated the complex in the first place. This energy remains in the unconscious mind. It is, nevertheless, active and something has to become of it. There is a possibility for it to attach itself to something else and produce a neurosis. It is interesting to note here that a system of complexes may be repressed which are incompatible with the conscious self and yet which are compatible with each other and hence build up an unconscious self. This is at the basis of double personalities. In some unknown way, in certain peculiar people it is possible for an alternation to exist between the conscious and unconscious when the unconscious is made up of compatible complexes. (5) By psychic trauma.—This term is given to the thought complex, which, because of its great incompatibility, requires to be repressed in order to preserve the superficial unity and harmony of the mind. Suppose that a young man falls in love with a very beautiful girl. He proposes marriage to her and she accepts. He goes with the girl to her father to tell the good news, but unexpectedly finds that her father is so violently opposed to him that marriage is out of the question. Suppose, also, that at the time there was a very bright light in the room and that the victrola was playing. This instance would be a Psychic Trauma. (6) By displacement.—Hence the energy which was behind his desire for marriage with the young lady will be displaced into a disliking for the very things which might have been most prominent in his mind at the time of the psychic trauma. Hence he will always have a dislike for bright lights and can never bear to hear the victrola play again. (7) By symbols.—Such symptoms are said to be symbolic and tend to take on the kind of discomfort which happened by accident to be present at the time of the occurrence of the painful experience. The moment of the acquisition of the symbols is known as the "accidental moment."

Thus we see that though a complex may be repressed it does not necessarily cease to function for, by the use of symbols, it is possible for it to function in a variety of concealed ways and in the most peculiar manifestations through its use of symbols. For the energy or "libido" which is attached to it always seeks an outlet. Just how this outlet may manifest itself cannot be determined until its manifestation, and then its cause may be reached only by Psychoanalysis. It is interesting to note a few facts in connection with the "libido," or the energy which is supposed to be connected with any complex. To the ordinary reader of Freudian Psychology, the word "libido" connotes something sexual; but we are advised by the more recent American writers on the subject that "libido" "embraces as well all desires, in-

stincts, wishes, ambitions, aspirations, hungers, acquisitions, the social sense, love of art, etc." Hence we are led to believe that the word connotes every impulse in us which tends to produce movement or action. But before going further into the subject I should like to warn the reader that although the term is supposed to take in this almost unbelievable territory, yet at the same time in every case that I can bring to mind "libido" is invariably identified with the sexual.

Now, before going further with this paper it is necessary to consider again a little more in detail just the effects that repression of complexes has on the individual. When we have two opposing complexes, one of which must be chosen, an attempt is made by the mind to rationalize one of them in order to give full play to the other. If the rationalization of this complex is complete and satisfactory, it remains in the subconscious and does not tend to appear again in harmful manifestations. But if the rationalization of the complex is not complete, then the emotional tone continues to be active and produces psychoses. But these psychoses manifest themselves symbolically and under such a complete camouflage that it is impossible to trace back the manifestation to its true meaning. But Psychoanalysis attempts to do this very thing, and bases the curative powers upon the hypothesis that as soon as the dissenting complex has been brought to light, it may be rationalized and peacefully tucked away into the subconsciousness.

The first workers in Psychoanalysis, especially Breuer, attempted to do this by means of hypnosis. But Freud came to the conclusion that when a person became hypnotized he was under the influence of the hypnotist and was not giving anything like a true manifestation of his subconscious self. Freud claims that there is a kind of "censor" in the mind that prevents the subconscious content, and especially the incompatible subconscious content, from manifesting itself. Hence the object of Psychoanalysis is to catch the "censor" off its guard and reveal the innermost secrets which are troubling the patient. At the present time dreams and association tests are made use of in most cases. Of these two, dreams are by far the more important. While a person is dreaming, the censor is apparently off its guard. Hence out of the subconscious mind the more important things push up into the consciousness of the dreamer. But these things represent those which are affecting the dreamer in his waking consciousness. They are the things, but they are expressed symbolically. The mind is attempting to fulfil the yearnings and wishes that are impossible of fulfillment in the waking life because of the incompatibility with the social or ideal consciousness. In dreams the patient may satisfy his desires to the fullest extent and not be molested in the least way by any of the incumbrances which life puts upon him.

Let me give you a few examples of Psychoanalysis. Dr. A. A. Brill relates the following dream: "A woman was at a menagerie with a little niece. The animals all came out of their cages. She was greatly frightened. She saw a stairway, which she went up with great trouble. All the doors at the top were locked." This is the analysis. The patient suffered from hysteria and had a terrible disgust for sex. The niece typified purity, innocence, maidenhood. The wild animals signified the animal passions that were pursuing her. The great effort of reaching the top of the stairs signified the acceptance of normal sex without running away from it. "The several closed doors which she could not open signify the many opportunities to marry which she had let slip." I happened recently to be reading an article by Dr. Charles W. Burr in which he made comment on this very dream: "This was published by a physician in the twentieth century and in America, not in the ages of witchcraft, nor in the heart of Africa." I should not like to be so hard on the advocates of Psychoanalysis as that, but I do agree with Dr. Burr in his belief that the interpretation of the dream certainly needs criticism. The first thing that I should like to call to the attention of the reader is the fact that the idea of sex entirely dominates the interpretation of the dream. This is characteristic in one sense or the other of the interpretation of all dreams by Psychoanalysts No matter how peculiar the dream may be, it will always be found that the analyst has devised some way of considering it as a manifestation of repressed sexual desires. In the second place, I can see no good reason in the world for interpreting the dream in this manner. In my opinion, the dream might have had a much easier method of approach than the highly artificial one which Brill has attributed to it. It seems to me much more logical that the young woman might

have had a natural fear of wild animals. This fear might have been accentuated by some little incident that happened a day or so before; or even she might have been closely associated with animals a few days before and hence have obtained a fear for them. The fact that the animals set upon her and she tried to escape but found her way blocked would symbolize her conscious fears that she would some day come to harm by an animal. Even this is not the only interpretation of the dream possible. Certainly a dream with this one's possibilities should have at least five or six other interpretations which would be as good as those given by Dr. Brill and myself.

Illustration after illustration could be cited from the work of the same and other eminent Psychoanalysts, but this seems unnecessary. I am not prepared here to go into the refutation of the value of Psychoanalysis. It may be that it is a method of getting beneath the "censor" of the mind. But I believe that with the complex system of symbols that Freud himself says the dreamers' mind uses, it is almost impossible to get into the real meaning of the dreams. And again I cannot quite see into another situation. It is admitted by the Psychoanalysts themselves that people have gone to them, made up dreams, and told the dreams to the doctor as if they were real dreams. But we are not going to get around the Psychoanalyst so easily. He claims that the imagined dream is just as good for his purpose as a real dream. For that matter the expressions of authors in the forms of novels or any kind of writings are just as good material for the Psychoanalysts as true dreams themselves. Probably they are, for the analyst is going to interpret them in a sexual way just the same. I can see no reason in the world for interpreting *all* dreams as the result of sex. Dreams are probably the symbolic expression of repressed desires; and the complexes which are going to come into the consciousness in the form of dreams are probably the ones that have the most reserve energy attached to them, or rather the most important ones or the ones which are most out of harmony with the waking self. Even upon this basis, which Freud himself seems to indorse, I see no logical reason for such uniform interpretation. There can be no doubt in the mind of anyone that sex is one of the most important things in a person's life and that it is very often perverted, and that when it is perverted there is a powerful complex repressed or perverted which is likely to cause trouble. But if any one of us will look back into his own life and those of intimate friends whom he feels that he surely knows, he must find that many people have other impulses repressed which are just as powerful and important in the life of the individual as the sexual impulse.

I rather hesitate to comment upon the value of interpreting the dreams, association tests, etc., of the patient. I do not believe that it is possible for anyone to be able to interpret any single dream. Freud himself did not believe this, although one might be led to believe so from a hasty scanning of his writings. In the first place, he says that the doctor must know the patient for several weeks before he is able to do anything for him. After this it takes from six months to several years before he can begin to expect results. Hence the patient must have the attention of the doctor over a long period of time. He is brought under the influence of the suggestions of the doctor, made to become familiar with Freudian Psychology; hence, if there is anything of a pronounced nature in the patient (and there always is), it is sure to be brought out. The patient is not allowed to remain out of the influence of such an overly emphasized life. But even at that the sexual is so weak as to make its expression obscure. You have seen a few of the examples which Psychoanalysis offers us to show positively how dreams may be so uniformly interpreted.

This very fact tends to show the difficulty of interpreting the highly symbolized dreams, even if the theory of Freud is correct. The interpretation must be based upon the intuition of the doctor. The dream must be fitted to what the physician believes it to symbolize. If the physician takes the case in good faith, I cannot conceive of anyone having the intuition to interpret, I mean accurately interpret, dreams which have so many avenues of approach as all dreams have. If they are to be interpreted as the mere expression of repressed desires of many kinds, of which sexual desires represent but a small part, then I do not believe that it is possible for any physician, however skilled, to interpret accurately the dream of the patient.

There can be no doubt as to the pragmatic value that Psychoanalysis often has. The patients in whom we are most especially interested are those who are on the border line of

insanity. In cases which have progressed far into the disease, Psychoanalysis is of no use. Further, it is of no use among patients who are bordering on idiocy. But for border line cases with a fair amount of intelligence it often has a profound value. At the same time this does not at all prove the correctness of the Freudian theory. It merely shows that the methods of treatment often have a good effect on the patients; the real reason for their functioning is another question. It seems to me that in most of these cases the doctor serves as a means of bettering the environment of the patient. I should like to take issue with Freud and his theory that insanity may be explained by means of psychological terms; that is, if I interpret the term correctly. Probably it is a fact that insanity in itself may be explained in terms of psychology. But this does not explain the basis or the *real* cause of insanity. The real cause of insanity is the faulty development of the central nervous system or some injury to it after its development. If the nervous system or brain were what it should be, then the things which Freud points out as the causes for insanity would have no effect on the individual at all. Is it not a fact that many sane and perfectly normal persons undergo a great deal more than most of the insane do? On the other hand, if the insane had lived under perfect conditions, probably they would still be normal. But that is begging the question of insanity. However, there are certain border line cases which might have remained normal if their environment had remained normal. But when their environment became badly deranged, their inherited abilities were not sufficent to overcome their abnormal environment; hence they pass over into the category of the insane. These are the persons with whom the Psychoanalyst has his success. From the very outset he gains the confidence of the patient. Hence he acts as a sort of advisor for him and takes the place of what the patient lacks in the form of "brains" and probably of environment. After the doctor has worked with the patient for a long enough time he may accomplish for the patient what the patient ought already to have accomplished for himself. But I do not believe that this can be done by the interpretation of a single dream. The doctor must come to understand thoroughly the mental life of his patient, his worries, troubles, aspirations, weaknesses, and the like, through many consultations and in divers ways besides the interpretation of dreams. After he has come to see what is back of the patient's worries, he uses his own brain for that of the patient and rationalizes the repressed desires so that they may rest in peace in the subconscious mind and not give rise to further neuroses.

We conclude, then, that Psychoanalysis may have some pragmatic value, but this is not to admit the truth of all its theoretical implications. Many of these have not been and, in the very nature of the case, can never be verified so as to become a part of scientific psychology.

Correspondence

New Type of Influenza.

Warrenton, Va.,
August 15, 1924.

To The Editor:

We seem to have a new or a queer expression of an old disease—perhaps influenza—in this section.

So far it is confined to children from eight years of age down to infants past ten months. Without an initial warning, it begins with vomiting every few minutes, bowels become constipated and stubborn to treatment; and when they do move by oral and rectal persuasion, the actions are pasty and chalky in color. It requires from three to five days' effort to get them back to normal consistency, color and comfort. Patients become prostrated, pulse weakens with muscular tenderness and constant perspiration and loss of desire for food. This condition lasts for from three to five or six days. About the time the symptoms yield, a number of very small fiery red specks appear on the upper arms, over shoulders and back, with itching and burning. Tongues become white coated. There have been no adult cases. The condition appeared in several families about the same time, no family having been in contact with the others.

I told the parents that I did not know what it was but, from the symptoms, especially the subnormal temperatures, tendency to sweating, muscular weakness and skin tenderness, it must be influenza.

Since these patients have recovered, Dr. R. E. Wine, of Nokesville, was called to assist me in an obstetrical case, and he mentioned having the same kind of puzzling experience

with children in his practice. He says he called it "influenza" for want of a better name. His cases happened in the week that mine did but twelve miles distant from mine, with no communication.

I write this for your consideration and to post you should you hear from a like experience of physicians in other sections.

STEPHEN HARNSBERGER, M. D.

Miscellaneous

THE COMING MEETING OF THE MEDICAL SOCIETY OF VIRGINIA.

Attractions Offered by Staunton to the Visitors.

By CHARLES MINOR BLACKFORD, M. D., Staunton, Va.

Staunton offers many and varied attractions to the visitors who may attend the coming meeting of the Medical Society of Virginia, especially to those who come from the tidewater and lowland portions of the State. Situated in the middle of the Shenandoah Valley, many points of interest are to be found in its vicinity, and smooth, macadam roads leading out in all directions enable automobile passengers to reach these points with but little expenditure of time or labor.

In the years following the Civil War, steps were taken to re-open the schools for which Staunton had been noted throughout the South, and to open new ones. Many of the ladies of the Old South had attended one of these Staunton schools, and many of the mothers and wives of today look back to Staunton for the bright memories which only schooldays give. In 1831 a widow, Mrs. Maria Sheffey, assisted by her daughters, opened a boarding school for girls in her residence, and in January, 1844, "a meeting of the friends of Mrs. Sheffey's school" was held and a board of thirteen trustees was appointed to take charge of the establishment. These trustees changed the name of the school to "The Virginia Female Institute," and elected Mrs. Sheffey and the Reverend James McElroy as Principals of the school, which was continued in operation until the present building was finished. The cornerstone was laid on June 1, 1846, with much ceremony.

In 1880, Mrs. J. E. B. Stuart, widow of the famous Confederate cavalry commander, was made Principal, and for nineteen year she was at the head of the school. On her retirement her place was taken by Miss Maria Pendleton Duval and, while Miss Duval was in charge, the State Corporation Commission authorized the trustees to change the name to "Stuart Hall," as a memorial to Mrs. Stuart. The school now has Mrs. H. N. Hills as Principal, and is under the control of a Board of Visitors, the President of which is the Right Reverend Robert C. Jett, D. D., Bishop of Southwestern Virginia.

Another famous girls' schools in Staunton is the Mary Baldwin Seminary. This institution was founded in 1842 under the name of the Augusta Female Seminary, and it grew in size and importance until the beginning of the Civil War. Misses Mary Julia Baldwin and Agnes McClung devoted their lives to the upbuilding of the school, and the present name is a memorial to Miss Baldwin. For a number of years the Mary Baldwin Seminary was content to give the usual courses of instruction offered by all high class girls' schools, but in 1923 the trustees yielded to the increasing demand for the higher education of women, and the Mary Baldwin College was chartered. Grounds were purchased on the outskirts of Staunton, and, as soon as may be practicable, the college buildings will be erected. For the present, however, the college will be housed in the Seminary buildings.

Students from twenty-eight States and two foreign countries are in attendance on the Seminary; in all, 351 pupils. Miss Marianna P. Higgins is the Principal, and both she and Mrs. Hills, of Stuart Hall, extend a cordial invitation to the members of the Society and those with them to visit the schools.

In Staunton, or in its neighborhood, stand three military schools which are well and widely known. These are the Staunton Military Academy, better known locally as "Kable's School;" the Augusta Military Academy, locally called "Roller's School," and the Fishburne Military School in Waynesboro. The Staunton Military Academy was founded by Captain William H. Kable, a Master of Arts of the University of Virginia, who opened the school shortly after his return from service in the Confederate Army. On his retirement, his son, Colonel Wm. G. Kable, replaced him as President, but on his death in 1920, the present President, Colonel Thomas Halbert Russell, took the post.

The school has high standing. For a number of years it has been one of the ten "Honor

Schools" of the War Department, and on nomination by the President of the Academy, such of its graduates as have secured appointments are admitted to West Point and Annapolis without examination other than physical. As an "Honor School," the Academy has the privilege of awarding two scholarships to West Point, but as the course there is four years in duration, it is obvious that one of these scholarships cannot be awarded each year.

The Augusta Military Academy is located near Fort Defiance, some nine miles from Staunton on the Lee Highway. It was founded in 1865 by Colonel Charles S. Roller after his return from the Confederate service, and is now under the charge of his two sons, Colonel T. J. Roller and Major Chas. S. Roller. The school has prospered and during the last session nearly 300 boys were cadets in its corps. The ride from Staunton is a beautiful one. The road passes through the midst of the Valley, and on each side a magnificent sweep of the Blue Ridge and the Alleghanies may be had. The evening dress parade and retreat is a most attractive sight, and the Principals most cordially invite the visitors to witness it and inspect the school.

In 1879 Professor James A. Fishburne, of Waynesboro, became convinced of the need of a school which would furnish a liberal education for the youth of his native town and its vicinity. He founded the Fishburne Military School, which at first was merely a day school, but its reputation spread and so many applications for admission came from a distance that a boarding department had to be established for their accomodation. At the present time there are about one hundred and fifty boarders besides those from the vicinity. Professor Fishburne has long passed to his reward and the Principal is now Colonel Morgan H. Hudgins, under whose management the school has become a prominent factor in the scholastic and athletic life of the State. All visitors from other sections of the State should visit the beautiful little city of Waynesboro, nestled on the shores of the south fork of the Shenandoah River at the foot of the Blue Ridge, and inspect the Fishburne Military School.

Although lacking the picturesque attractions offered by the military schools with their glittering uniforms and martial music, the Dunsmore Business College is well worthy of a visit by those who are interested in the details of modern business life. Fifty-one years ago J. G. Dunsmore, a young man, freshly graduated from the Eastman Business College at Poughkeepsie, N. Y., opened a business school in Sink's Grove, a tiny hamlet in Monroe County, West Virginia. After struggling with financial embarrassment from small attendance and the ridicule of many who thought that to teach business in a school was mere folly, he concluded that Sink's Grove was an unsuitable site, and in the Spring of 1880, he moved his school to Staunton. Each of the forty-three years which have passed since the move was made has shown steady improvement, and at last success has crowned the effort. Messrs. Morris M. Edgar and John R. Eye are the President and Vice-President respectively, and during the last session there were 152 students in attendance.

Staunton is a center for tours of the greatest charm. Only a few miles away is the famous Weyer's Cave, at Grottoes. Before the Civil War this cave was widely known throughout the United States, and the automobile has done much to revive its vogue. The beauties of this wonderland have been described by many who are better qualified to perform the task than is the writer, and a visit to it offers a delightful excursion over an excellent road to those who attend the meeting of the Medical Society. The caverns of Luray, the Endless Caverns and the Grottoes of the Shenandoah, can each be reached in a half day, and each will be a treat to anyone who has never seen them.

One of the most beautiful rides in the eastern portion of the United States is that from Staunton to Monterey, the countyseat of Highland County. Passing through Churchville, the Deerfield Valley along the Calfpasture River is reached by going through Jennings' Gap, a beautiful pass through the North Mountain range. The road rises to the summit of Shenandoah Mountain, from which a wonderful view of forest-clad mountains is had, and the whole journey is replete with mountain scenery which in the early autumn is almost beyond description. Highland County is fully as lovely as is the much praised azure country of North Carolina, and Virginia medical men owe it to themselves and their patients to see this marvellously beautiful portion of their own State.

THE ROAD TO MONTEREY.

By CHARLES MINOR BLACKFORD, M. D.

If you want to make a journey that will satisfy your soul;
That will rest your mind and body and will make you sound and whole;
Simply hie you out to Highland; take the wife and take the boy,
For a run across the mountains that will fill your heart with joy,
Oh, that road to Monterey,
On a calm, soft summer day,
There is nothing that can equal that old road to Monterey!
Oh, the road to Monterey,
Where the lights and shadows play,
As you ride across the mountains on the road to Monterey!

Churchville passed, to West Augusta you will go through Jennings' Gap,
'Round the foot of old North Mountain, far below its lofty cap;
Then comes Shenandoah Mountain, and you climb its wooded side
To the summit where a view is seen that spreads out far and wide.
From the road to Monterey,
On a calm, soft summer day,
You think you see the Promised Land there spreading far away!
Oh, the road to Monterey,
Where the lights and shadows play,
As you ride across the mountains on the road to Monterey!

The mighty Alleghanies in their stately beauty stand
All around you, and their massive peaks are rising close at hand.
Then Headwaters, where the rivers rise that flow both north and south,
To the James and the Potomac, meeting at the Chesapeake's mouth.
From the road to Monterey,
Flowing downward to the Bay,
You see those rivers rising from the road to Monterey.
Oh, the road to Monterey,
Where the lights and shadows play,
As you ride across the mountains on the road to Monterey!

Then McDowell, where the battle was, the fight up in the sky,
Brings thoughts of Stonewall Jackson and a name that ne'er will die.
You ride through many a mountain glade until at last you say,
Your journey's end is reached at last:—you come to Monterey!
Oh, that road to Monterey,
On a calm, soft summer day,
There is nothing that can equal that old road to Monterey!
On that road to Monterey,
All your troubles fade away,
As you ride across the mountains on the road to Monterey!

Analyses, Selections, Etc.

Abrams Treatment Again Discredited.

We are indebted to one of our readers for the following selection from *The New York Times*, which again discredits the Abrams Treatment and deplores the credulity of a public ever ready to grasp at anything out of the ordinary.

A Culminating Test of Credulity.

"According to credible report, the late Dr. Abrams of electronic fame left a fortune of several millions, possibly five. Well he might! Of all this country's many medical quacks and charlatans he showed the most cynical confidence in the amount of credulity, of gullibility, characterizing a considerable fraction of its inhabitants, and for the exploitation of that faction he devised a scheme of magnificent absurdity.

"His statements as to the diagnostic and curative powers of his system and his machines were a wild sequence of perfectly obvious impossibilities. Ordinary intelligence out of medical circles, and ordinary honesty in those circles, rejected his claims on first hearing. Yet his dupes were numerous all over the country, and there were not a few men with medical diplomas who lent themselves to the working of the great swindle, merely because there was money in it. Possibly Dr. Abrams was self-deceived as well as a deceiver, but this charity breaks when stretched to cover his professional disciples in 'electronism.'

"The Scientific American has just made, or had made, a really expert investigation of the Abrams methods and apparatus. The report—it is not the first of like kind by any means—is the inevitable one that there is absolutely no basis for any of the claims made in behalf of the electronic system of diagnosis and treatment. It is humbug and fake—all of it.

"Of course, like all quacks, the Abramsites have their 'testimonials' of marvelous or miraculous healings after the regular doctors have failed. Some of these documents are forgeries, some of them record temporary improvement and the rest only show what can be done by the power of suggestion in chance selected cases. Suggestions can be made by an Abrams vibrator just as well as by a Coue formula.

Every charlatan has his triumphs; it is to be regretted that his victims cannot be buried in a special graveyard, where they could be counted."—(*New York Times*, August 20, 1924).

Report of Scientific American Abrams Investigation Committee.

The revolutionary Abrams technique for the diagnosis and treatment of disease which has swept the country is utterly without foundation in science.

Such is the verdict of the *Scientific American* Abrams Investigation Committee which for nearly a year has subjected the so-called electronic reactions of Abrams to a searching analysis. The practitioners of the Abrams method have declared it holds out new hope for suffering humanity. Its enemies have dubbed it the greatest piece of charlatanism in history. The movement has spread to all parts of the world and threatened to upset the entire theory of the medical profession.

There have been forty-four different variations of the Abrams apparatus in this country alone. The Abrams method has had 3,500 practitioners; the other methods have each had a thousand more. The number of patients of all them has run into hundreds of thousands.

"The so-called electronic reactions of Abrams do not exist—at least objectively," declares the committee. "They are merely products of the Abrams practitioners' minds. These so-called reactions are without diagnostic value. And the Abrams oscilloclast, intended to restore the proper electronic conditions in the diseased or ailing body, is barren of real therapeutic value. The entire Abrams electronic technique is not worthy of serious attention in any of its numerous variations. At best, it is all an illusion. At worst, it is a colossal fraud.

"This electronic development has caused a sad state of affairs in this world of ours. It has given rise to all sorts of occultism in medicine. It has been a renaissance of the black magic of medieval times. It has given free reign to idiotic ideas—ideas which would formerly have been laughed out of existence at their very start. Suffering humanity has been made so many lavish promises of late that it is a sad disillusion now to go back to our conservative orthodox medicine, which, after all, remains our mainstay.

"When the day arrives for the practical application of such serious research work, we may be certain that it will have nothing in common with the passing electronic craze. In so far as concerns the apparatus employed, the methods of exploitation, or the qualifications of the men engaged in the work, it will be wholly without resemblance to the cults whose basic ideas and whose technique this Committee denounces."

Dr. Abrams died suddenly of pneumonia on January 13, in the midst of the "*Scientific American*" investigation. His death came on the eve of his scheduled appearance as the star witness in the trial of Dr. Mary Lecoque, an E. R. A. practitioner, at Jonesboro, Ark., charged with using the mails to defraud.—(*Scientific American*).

Jack-Knife Position After Hernia Operations.

The posture of the patient after an operation for hernia is usually neglected. If surgeons realized that they could reduce their recurrences materially, besides adding to the comfort of their patients, the jack-knife position would become a matter of routine for inguinal, femoral, umbilical and ventral hernias which presented difficulties in closing the fascial layers.

In inguinal hernia operations the best exposure is obtained by keeping the thigh extended until the deep sutures are ready to be tied, when it should be elevated, adducted and rotated inward. This reduces the distance between Poupart's ligament, the internal oblique and conjoined tendon from twenty-five to fifty per cent, depending on the size of the opening, the variety of hernia, and the development of the muscles. After the patient is returned to bed his knees and shoulders should be elevated twenty-five to forty-five degrees by means of pillows and a back rest. This position takes the strain off of the stitches during the process of repair, permits a broad firm union of fascial flaps, and reduces the percentage of recurrences. The jack-knife posture should be maintained as long as the patient stays in bed.—(Leigh F. Watson, *Annals of Surgery*, August, 1924, lxxx, pp. 239-241).

Paraffinoma of the Vas Deferens.

Leigh F. Watson reports an unusual complication following the paraffin injection of an inguinal hernia by a charlatan. The hernia

promptly recurred and the cord and testicle on the side treated became swollen, painful and tender on pressure. At operation paraffin masses were removed from the internal oblique muscle, the conjoined tendon, and the vas deferens. The vas was occluded and it was necessary to resect it and anastomose the ends.

Because of the high percentage of recurrence following operations for "paraffin hernia," the regular Bassini operation was combined with the author's method of *lateral displacement of the cord.* With the cord displaced on to the internal oblique, one-half inch to the inner side of the deep suture line, the overlapped fascial flaps were securely stitched to the deep suture line to re-enforce the weak spots, the usual points of recurrence—the internal ring, the lower end of the incision over the pubic bone, and the line of deep sutures.

The serious accidents that sometimes follow paraffin injections of hernia are: Gangrene of the skin; injection of cord structures; wounding of intestine, appendix, or bladder with the needle; injection into blood vessels, followed by pulmonary or cerebral embolism or sudden blindness from plugging of the artery of the retina, and occlusion of the iliac or femoral artery, with gangrene of the extremity necessitating amputation. (*Jour. Amer. Med. Assn.* 1924, lxxxii, June 14, pp. 1935-1936).

Proceedings of Societies

Floyd County Medical Society Re-Organizes

On July 26th, a number of the doctors of Floyd County, Va. held a meeting and decided to re-organize that Society. Dr. J. M. Harman, Floyd, was elected president; Dr. S. T. Yeatts, Floyd, vice-president; Dr. R. T. Akers, Alum Ridge, secretary-treasurer. The first regular meeting was scheduled for August 30th, at which time a delegate was to be elected to represent the Society at the Staunton meeting of the Medical Society of Virginia.

Hanover County Medical Society Organized.

On Monday, August the 18th, the physicians of Hanover County met at Ashland, Va., and formed the Hanover County Medical Society. Officers elected were Dr. T. J. Stanley, of Montpelier, president; Dr. A. C. Ray, of Ashland, vice-president; and Dr. J. A. Wright, Doswell, secretary-treasurer. This society proposes to meet every other month, on the second Tuesday, at 7 P. M., at Ashland. The next meeting will be held on September the 9th, at which time Dr. I. K. Redd, of Atlee, will present a paper.

The Nelson County Medical Society

Held its annual meeting on July 28, and elected the following officers for the ensuing year: President, Dr. F. M. Horsley, Lovingston; secretary-treasurer, Dr. J. F. Thaxton (re-elected), Tye River; delegate to Staunton meeting of the Medical Society of Virginia, Dr. E. C. Kidd, Lovingston; alternate to the delegate, Dr. J. C. Everett, Nellys Ford.

The Loudoun County Medical Society,

At a regular meeting held August 5th, elected the following officers for the coming year: President, Dr. A. B. Householder, Lovettsville; vice-president, Dr. C. P. Hutchison, Purcellville; secretary-treasurer, Dr. W. C. Orr, Leesburg.

The Warren, Rappahannock and Page Medical Society

Held it regular meeting at Flint Hill, Va., August 12th, Dr. D. M. Kipps, of Front Royal, presiding. Dr. Virgil Hammer, of Luray, is vice-president and Dr. E. L. Grubbs, of Front Royal, secretary-treasurer of this society. Several interesting papers were presented by the members, the subject for general discussion being Chronic Tuberculosis of the Lungs.

The Truth About Medicine

In addition to the articles enumerated in our letter of June 28th, the following have been accepted:

Manhattan Eye Salve Company,

Butyn Ointment—M. E. S. Co.

Holocaine Ointment—M. E. S. Co.

NEW AND NON-OFFICIAL REMEDIES.

Benzyl fumarate—Abbott. Benzylis fumaras.—It contains not less than 99 per cent. of benzyl fumarate. Benzyl fumarate acts like benzyl benzoate and benzyl succinate in lowering the tone of unstriped muscle. Like benzyl succinate, it has the advantage over benzyl benzoate in that, because of its insolubility in water, it is practically tasteless and does

not produce gastric disturbance. It is employed in the same conditions as benzyl benzoate and benzyl succinate. (See New and Non-official Remedies, 1924, pp. 69 and 71). The Abbott Laboratories, Chicago.

Sulpharsphenamine—Metz.—A brand of sulpharsphenamine—N. N. R. For a discussion of the actions, uses and dosage of sulpharsphenamine, see New and Non-official Remedies, 1924, p. 56. Sulpharsphenamine—Metz, is supplied in ampules containing, respectively, 0.05, 0.075, 0.1, 0.15, 0.3, 0.45 and 0.6 Gm. The H. A. Metz Laboratories, New York. (Jour. A. M. A., July 5, 1924, p. 41).

Mead's Cod Liver Oil.—It has a vitamin potency so that one-fourth of one per cent. cures experimental rickets in rats in five days when added to the diet. For a discussion of the actions and uses of cod liver oil, see Useful Drugs, 6th edition. Mead Johnson and Co., Evansville, Ind. (Jour. A. M. A., July 12, 1924, p. 121).

Oleo-Bi (Roche).—A suspension of finely divided bismuth oleate in olive oil, containing bismuth oleate equivalent to 0.05 Gm. of bismuth (Bi) in each c.c. Oleo-Bi (Roche) is preposed as a means of obtaining the systemic effects of bismuth in the treatment of syphilis. (See Bismuth Compounds, New and Non-official Remedies, 1924, p. 74). Two c.c. are administered intramuscularly, preferably into the gluteal muscle, two or three times a week. Oleo-Bi (Roche) is marketed in the form of 2 c.c. ampules. The Hoffmann-LaRoche Chemical Works, New York. (Jour. A. M. A., July 19, 1924, p. 195).

Butyn Ointment—M. E. S. Co.—Composed of butyn (see New and Non-official Remedies, 1924, p. 32), 1 per cent., water 1 per cent., wool fat and petrolatum 98 per cent. The ointment is put up in collapsible tubes for application to the eye. Manhattan Eye Salve Co., Louisville, Ky. (Jour. A. M. A., July 26, 1924, p. 271).

PROPAGANDA FOR REFORM.

The Commercial Taint in Medical Advertising.—The advertisements of firms that sell apparatus, especially for physiotherapeutics and diagnostic uses, show a tendency to stress the idea that the purchaser of such apparatus will increase his income by impressing the layman with the scientific attainments of the individual who uses it. No decent man in the medical profession thinks of adding to his armamentarium for the purpose of financial gain. An advertiser's appeal to buy a piece of apparatus because of the "psychic effect" which it may produce on the patient is repugnant and insulting. Any firm that thinks it is going to obtain the good will of the medical profession by an appeal to the sordid is sadly mistaken.—(Jour. A. M. A., July 5, 1924, p. 44).

Prophylactic Inoculation of Dogs Against Rabies.—The evidence for the efficiency of prophylactic immunization in persons bitten by rabid animals has long been too convincing to permit of doubt. In Japan experiments to reduce the frequency of rabies by inoculation of the dog population show that its frequency with dogs has been greatly reduced. (Jour. A. M. A., July 5, 1924, p. 44).

Purifico, A Cancer Cure Fraud.—In 1917 the persons doing business as the Purifico Company pleaded guilty to the charge of the federal authorities that the claim that Purifico was an effective remedy for cancer and other conditions was false and fraudulent. Now a fraud order has been issued against the Purifico Company, denying the firm the use of the mails. Analysis showed "Purifico No. 1" to be a watery, alcoholic, sugar mixture of cinchona, plant extractives, a vegetable laxative and potassium iodid. "Purifico No. 2" was a watery, alcoholic mixture of cinchona, plant extractives and potassium iodid. "Purifico No. 3" was a watery, alcoholic, sugar mixture of plant extractives, including valerian. (Jour. A. M. A., July 5, 1924, p. 56).

"Sero" Endocrine Preparations.—A circular "For Endocrine Therapy" bears the name of R. A. White, Los Angeles, and Cal. Endocrine Foundation Laboratories, Long Beach. It advertises "Asthma Sero," "Antitoxoid in Tuberculosis," "Rheumatism Sero," "Nephro Sero," "Pneumonia Sero," "Abscess Sero," "Tabes Sero" and "Malnutrition Sero." In connection with each product appear words, which if read hurriedly, might be taken by some as a statement of composition. For instance "Antitoxoid in Tuberculosis" is said to contain "Orco-plasm, Thyroid Extract and Phosporo Iodide." "Rheumatism Sero" is said to contain "Orco-plasm and Thymus Iodide." The circular contains the vague statement that orco-plasms are compounds that "represent unchanged protoplasm and serologic organic and inorganic substance." It contains also the unenlightening statement that "the Inorganic Substance in the Seros are in form Physiological Solutions." The circular wisely makes no attempt to define "phosporo-iodide" and "thymus iodide." (Jour. A. M. A., July 5, 1924, p. 58).

Cellasin.—Cellasin is sold by the Cellasin Company, Buffalo. Cellasin, then marketed by another firm, was reported on by the Council on Pharmacy and Chemistry about fifteen years ago. It was submitted to the Council with the claim that it was a ferment absorbed unchanged into the tissues, that it cured diabetes mellitus and that it cured tuberculosis and established immunity against this disease. The Council's report at that time brought out that the claims were unwarranted and that it contained, not a ferment, but a spore-producing bacterium which splits sucrose largely into lactic acid. (Jour. A. M. A., July 5, 1924, p. 58).

More Misbranded Nostrums.—The following products have been the subject of prosecution by the federal authorities charged with the enforcement of the Food and Drugs Act: Smith's Buchu Lithia Pills (C. F. Smith), containing powdered licorice, extracts of plant drugs including uva ursi and podophyllum, sodium, potassium, lithium and magnesium compounds, including nitrate and citrate, and soap. Famous Mineral Well Water (Famous Mineral Wells Water Co.), adulterated water, consisting in whole or in part of filthy and decomposed animal or vegetable substances. Foley's Kidney Pills (Foley and Co.), containing potassium nitrate, methylene blue, hexamethylenamin tetramin and plant material including resin and juniper oil.

Irongland Tonic Tablets (Sanitary Products Co.), containing an iron compound and material of animal origin. Remlock 300 (Remlock Hills Laboratory), consisting of 99 per cent. water and 1 per cent. calcium hypochlorite, calcium chlorid and calcium carbonate. Trask's Ointment (D. Ransom, Son and Co.), consisting of extracts of plants, including tobacco and lobelia, mixed with fat. Tubbs White Pine Cough Cure (The Tubbs Medicine Co.), consisting essentially of pine tar, extract of a bark, chloroform, sugar, alcohol and water. (Jour. A. M. A., July 12, 1924, p. 138).

Nicomors.—The Council on Pharmacy and Chemistry took up the consideration of Nicomors, stated to be a medical preparation for the alleviation of the

physiologic effects of nicotin at the request of the Nicomors Products Company. Nicomors comes in the form of tablets which are claimed to contain magnesium peroxid and tannic acid as their essential constituents. It is claimed that with the use of Nicomors the effects of tobacco smoking show very little or not at all. It is even claimed that the preparation has a favorable effect on the stomach and the intestines. The Council reports that the claim that the random use of a mixture of magnesium peroxid and tannic acid has a favorable effect on the stomach and intestines, is without warrant, and that the claim that the ill effects of tobacco smoking can be overcome by the use of Nicomors is not credible and not supported by any acceptable evidence. (Jour. A. M. A., July 19, 1924, p. 212).

An Anesthetic Monopoly.—U. S. patent 1,491,740, was issued April 22, 1924, and was assigned by the patentee to the S. S. White Dental Manufacturing Co. The specifications of the patent describe a process for making a nearly anhydrous nitrous oxid. The patentee claims patent rights, not only on his process for reducing the moisture-content and in nitrous oxid manufactured by that process, but on all nitrous oxid whatsoever conforming to the arbitrary standards stated in his claims, no matter how manufactured. The process, if novel, is presumably worthy of patent protection. But nitrous oxid has been recognized as a chemical entity since 1776, and it has long been possible to reduce by various processes the moisture-content incident to its manufacture. By what process of reasoning the patentee claims to have "invented" nitrous oxid of low moisture-content and how the patent office came to concede his claim, are beyond the comprehension of persons not versed in the mysteries of patent logic and patent law. It would not be to the public interest for any concern to obtain a monopoly on nitrous oxid free from moisture. It is to be hoped that the S. S. White Dental Manufacturing Company will not be able to secure a monopoly on dry nitrous oxid. (Jour. A. M. A., July 26, 1924, p. 287).

Book Announcements

The Principles and Practice of Obstetrics. By JOSEPH B. DE LEE, A. M., M. D., Professor of Obstetrics at Northwestern University Medical School; Obstetrician to Chicago Lying-In Hospital and Dispensary, etc. Fourth Edition, thoroughly revised. Large octavo of 1123 pages, with 1128 illustrations on 923 figures, 201 of them in colors. Philadelphia and London. W. B. Saunders Company. 1924. Cloth, $12.00 net.

Here is in truth a super-text-book. Unfortunately large from a utilitarian standpoint, it surely contains evrything worthwhile pertaining to the Principles and Practice of Obstetrics. It is well written and beautifully illustrated, but above everything else, it is strongly conservative. The author says: "Something must be done to stem the tide of obstetric operating now prevalent with resultant maternal and fetal mortality." The indications for Cesarean section, forceps, pituitrin, etc., have been closely drawn. In this "hurry-up" age much mischief has been wrought by those who are unwilling to wait for the orderly procedure of Nature.

In discussing the low, cervical Cesarean section (laparotrachelotomy), the author says: "I hope the general as well as the obstetric surgeon will adopt this procedure, since I am convinced that if it should become established practice when abdominal delivery is indicated, it will directly and indirectly reduce the present frightful mortality from Cesarean section."

It is a most commendable work, containing everything new that is fit to go in a book.

H.

Medical Gynecology. By SAMUEL WYLLIS BANDLER, M. D., Professor of Gynecology, New York Post-Graduate Medical School and Hospital. Fourth Edition, thoroughly revised. Octavo of 930 pages with 157 original illustrations. Philadelphia and London. W. B. Saunders Company. 1924. Cloth, $8.00 net.

Goiter: Non-surgical Types and Treatment. By ISRAEL BRAM, M. D., Instructor in Clinical Medicine, Jefferson Medical College, Philadelphia, Pa.; Member of the Society for the Study of Internal Secretions, etc. New York. The Macmillan Company. 1924. Cloth, 479 pages.

Manual of the Diseases of the Eye. For Students and General Practitioners. By CHARLES H. MAY, M. D., Director and Visiting Surgeon, Eye Service, Bellevue Hospital, New York; Consulting Ophthalmologist to the Mt. Sinai Hospital, to the French Hospital, etc. Eleventh Edition, Revised. 12mo. 445 pages with 374 original illustrations, including 23 plates, with 73 colored plates. New York. William Wood and Company. 1924. Cloth. Price, $4.00.

1924 Health Education Conference.

The Health Education Division of the American Child Health Association called a conference which met in Cambridge, Mass., June 23-28, 1924, upon invitation of the Department of Biology and Public Health of the Massachusetts Institute of Technology. A summary of the points emphasized included: The personal health of the teacher in service and in training; the personal health of the pupil as presented in a report on the duties of physicians, nurses, teachers and parents in relation to the examination of the child; the principles underlying the gradation of subject matter from kindergarten to college and courses of study for the teacher in training; the functions of the specialist in a school health program; the care of the pre-school child; suggested tests for measuring certain results in health education.

Virginia Medical Monthly

FOUNDED BY LANDON B. EDWARDS, M. D., APRIL, 1874.
OWNED BY THE MEDICAL SOCIETY OF VIRGINIA.
PUBLISHED BY THE PUBLISHING COMMITTEE.

A. G. BROWN, Jr., M. D., Chairman, Richmond, Va.

B. R. TUCKER, M. D., Richmond, Va.
P. W. HOWLE, M. D., Richmond, Va.
E. L. KENDIG, M. D., Victoria, Va.
A. L. GRAY, M. D., Richmond, Va.

ALEX. G. BROWN, Jr., M. D., Editor.

AGNES V. EDWARDS, Business Manager and Secretary-Treasurer.

All correspondence regarding editorial matters, articles, advertisements, subscription rates, etc., should be addressed to the Journal.

All advertisements are received subject to the approval of the Council on Pharmacy and Chemistry of the American Medical Association.

Subscription Price: $2.00 per annum in advance.
Single Copies 20c.

Vol. 51 SEPTEMBER, 1924 No. 6

Editorial

Comments on High Blood Pressure and Guanidine Compounds.

Attempts to solve the problem of hypertension are not altogether satisfactory. The interrelation of anatomical changes in the heart, in the blood vessel wall, in the kidney, as well as in blood constituents, has not been clearly defined. Each of these may enter into the creation of hypertension, singly or in combination. Cardiac hypertrophy, developing upon a cardiac valvular lesion as a compensatory construction in heart work, may be the cause of hypertension. This may bring into play as an associated compensatory mechanical aid the sidewalls of the blood vessels. These two conditions may act as mechanical factors, increasing hypertension in time. Essential hypertension cases, probably arising from this or from syphilitic hyperplasia of tissue in the vessel wall, apparently, for years at least, show increased blood pressure without disclosing by any usual tests of urine the signs of nephritis. But a large proportion of hypertension cases are definitely characterized by a kidney factor in the contemplation of its possible etiology. This kidney factor has a double bearing to which modern medical inquiry is now directing attention. The function of the kidney is intimately connected with this situation. The anatomical changes of nephritis effect a change in the threshold or "sluice-gate" factor of the kidneys. The sluice-gate is raised in nephritis. The blood composition is altered, and unless compensations are made by the body in other ways, the blood ingredients of metabolism become abnormal. Now, the kidney in disease may be disordered in its function by two general ways: first, by change in its power to secrete water and salt; second, by a change in its power to eliminate nitrogenous substances. The threshold of kidney function in nephritis may be raised in one or both of these ways. The hypertension of the hydremic type of nephritis is associated with a different problem from that on which we now wish to comment. The hypertension in nephritis connected with nitrogen elimination has an interesting bearing because of some recent investigations. To this we wish to draw attention because the significance of the suggestions arising therefrom may perhaps serve to add to our knowledge of the causes of high blood pressure.

"Experiments," says Major[1], "show that urea, uric acid, creatin and creatinin have no constant effect on blood pressure. But guanidine bases have a desired effect in producing hyper-elevation of blood pressure. The guanidine metabolite is found in the blood under that undetermined group, non-protein nitrogen, resulting from protein metabolism. It is apparently significant that this metabolite produced elevation of blood pressure, while the urea, uric acid, creatin and creatinin did not." It seems possible, as Major points out, that damaged kidney cells become impermeable to guanidine substances of protein metabolism and become pressor in the activities in the blood upon the tension of the vessels.

In connection with the foregoing observations, the experiments by Major and Stephenson[2] have an interest. These experiments showed guanidine, methyl guanidine and dimethyl guanidine salts produce a marked and prolonged rise in the blood pressure, accompanied by a slowing of the heart and a decrease in respiration. This may have a clinical significance: calcium chloride either alone or combined with potassium chloride reduces blood pressure. In Major's article in the *J. A. M. A.*, the excretion of guanidine bodies in the urine of normal persons and of patients suffering from diabetes mellitus, chronic nephritis, essential hypertension and other diseases, was studied. While under observation these patients were placed on a meat diet. As

1. J. A. M. A., Vol. 83, No. 2, page 81. Relationship between certain Products of Metabolism and Arterial Hypertension.
2. Johns Hopkins Bulletin—No. 400, page 186.

a result the normal persons and patients with a normal temperature and a normal blood pressure showed an average daily excretion of 100 mg.; while the patients with a high blood pressure showed a marked diminution in the excretion of guanidine bases. Several of his febrile patients showed a marked increase in output of guanidine bases; one patient with a normal blood pressure, showing a severe chronic nephritis, and with a marked protein destruction, showed a high output of guanidine bases.

Major concludes his paper by saying: "In chronic nephritis the damaged kidney is unable to excrete properly urea, uric acid, creatin, creatinin, and that undetermined group of substances resulting from protein metabolism." While urea, uric acid, creatin and creatinin produce no effect on blood pressure, it is interesting to see that guanidine compounds exert such a profound pressor effect.

The Dick Test and Scarlet Fever.

Every doctor should know of the Dick Test. Zingher's article in the *J. A. M. A.*,-August 9, 1924, page 432, is a rather full elucidation of this important advance in diagnostic medicine. This is not the place for an elaboration of this paper, but we feel that our readers throughout the state may feel that a quotation of the conclusions of this article is justifiable in view of the importance of the subject so briefly summarized:

Conclusions

1. The Dick test is a reliable index of immunity and susceptibility to scarlet fever.

2. In conjunction with active immunization with scarlet fever toxin, it will help in solving the problem of the control of scarlet fever.

3. It serves to indicate the susceptible persons who need immediate passive immunization with scarlet fever antitoxin. The possibility of interpreting the reaction within twelve hours is of great clinical value for this purpose. In our experience up to the present time, seven of the positive reactors and none of the negative reactors have developed scarlet fever.

4. The Dick test helps in the diagnosis of doubtful cases of scarlet fever. A strongly positive reaction early in the disease and again late in convalescence speaks against the diagnosis of scarlet fever. A definite negative reaction during the first two days of rash should also put one on guard that he may not be dealing with scarlet fever. A negative reaction does not usually develop until the sixth to the tenth day of the disease, at a time when the rash has faded. Two children who had a strong positive reaction on admission to the hospital developed scarlet fever five days later. Both patients gave a negative reaction during convalescence.

5. Other applications of the skin test consist in studying the specific character of the toxin produced by different strains of hemolytic streptococcus. Such studies would be of value in the diagnosis of doubtful cases of scarlet fever; in the classification of clinical conditions caused by the hemolytic streptococcus but not associated with scarlatiniform rashes, and in the identification of normal and persistent carriers of the specific streptococcus of scarlet fever. Patients convalescent from scarlet fever may even be required to be free from the specific organisms before they are discharged from quarantine, if a method of accurate and rapid bacteriologic diagnosis is established.

6. A new impulse will be given by the application of the test to the study of scarlet fever to determine whether the disease includes a single clinical entity or whether, as was long suspected, the clinical conception of scarlet fever includes a variety of diseases with similar symptoms but not necessarily associated with the presence of the specific strains of the hemolytic streptococcus of scarlet fever.

7. Scarlet fever is a combined toxic and bacterial infection, caused by a specific hemolytic streptococcus. The immunity following an attack of scarlet fever is antitoxic and not to any extent antibacterial. This is shown by the fact that convalescent patients, who give a negative Dick reaction, may develop secondary septic complications produced by the specific streptococcus. A permanent antitoxic immunity following the disease explains the freedom from second attacks of clinical scarlet fever. It is possible, however, that subsequent infections without a rash caused by the specific streptococcus may occur in those who have recovered from an attack of scarlet fever. Such infections may also occur in those who give a negative Dick reaction.

8. The diluted toxin keeps well, and can be distributed in this form ready for the test. A control test, consisting of toxin heated at boiling temperature in a water bath for one

hour, has been suggested to identify the pseudoreactions.

9. The results with the Dick test in normal persons indicate that the percentage of susceptible persons by age groups and by social status resembles closely the similar percentage of persons susceptible to diphtheria noted with the Schick test.

10. The application of the Dick test in the early stage of scarlet fever showed a positive reaction in each one of the 141 patients tested. The reactions rapidly became less strongly positive, and were found negative from the seventh to the tenth day of the disease.

11. Of 170 scarlet fever patients tested during convalescence, 158, or 93 per cent, gave a negative Dick reaction. There is some doubt about the diagnosis of scarlet fever in most of the remaining twelve patients, who showed a persistent positive reaction in convalescence. Positive reactions can be brought out in scarlet fever convalescence by using a stronger dilution of the toxin (1:100). It is therefore necessary in making comparative studies to adhere to one standard dilution of the toxin.

12. Active immunization with scarlet fever toxin is a safe procedure, and is not to any extent associated with the development of constitutional symptoms, if the dose of the toxin is gradually increased. The amount is most conveniently increased by the skin test dose, the quantity injected representing 100, 250 and 250 skin test doses for children under 12 years, and 100, 250 and 500 skin test doses for persons over 12 years of age. The injections are given one week apart. The immunity results as shown by the Dick retest seem to be encouraging. A large proportion of the selected individuals show a pseudoreaction, indicating the necessity of adding the control test to the Dick test in checking up on the immunity results with scarlet fever toxin.

13. Purification of the toxin by the sodium chlorid and acetic acid precipitation method gives a preparation that is better for purposes of the test and active immunization, as it eliminates to a large extent the proteins causing the pseudo element in the Dick test and the local reactions as well as the sensitization after the immunizing injections.

14. Treating the toxin with formaldehyd to deprive it of nearly all its toxic properties without impairing its antigenic value seems to be an important further step in the development of the process of active immunization against scarlet fever.

15. The scarlet fever toxin is neutralized in multiple proportions by the antitoxic serum.

News Notes

Let's All Go To Staunton!

The annual meeting of the Medical Society of Virginia is to be in Staunton, October 14-17, inclusive, and we want a large attendance—not only for the good time you will have personally, but also for the enthusiasm which comes from a large gathering. "Nothing great was ever achieved without enthusiasm." Let each member do his part.

Staunton and vicinity possess many natural attractions which have been excellently portrayed in a series of articles in the *Monthly* by Dr. C. M. Blackford. We would especially call attention to the original poem in his article this month, entitled "The Road to Monterey." How can a lover of Nature miss the opportunity to see this lovely road?

The scientific program is to be of a high degree of excellence. Our president, Dr. Chaffin, has been fortunate in securing as his guests Dr. A. J. Ochsner, of Chicago, Dr. John O. Polak, of Brooklyn, and Dr. Daniel A. Orth, of Chicago. The subject for general discussion is endocrinology. This will be treated under various sub-divisions by Dr. W. B. Porter, Roanoke; Dr. P. W. Boyd, Winchester; Dr. W. L. Harris, Norfolk; Dr. Stephen Watts, University; Dr. Daniel D. Talley, Richmond; Dr. John J. Giesen, Radford; Dr. L. E. Stubbs, Newport News. The program will show a number of other excellent papers by our members. You really can't afford to miss this meeting.

Hotel Stonewall Jackson is to be headquarters, and we will have scientific exhibits, as far as space will permit. We are assured there will be ample accommodations for those who attend. If possible, however, make your hotel reservations in advance. Dr. A. F. Robertson, Jr., is chairman of the Local Committee of Arrangements.

Each component society of the State Society should have representation in the House of Delegates. If delegate has not been appointed from your county, see that it is done and send name to the Secretary of Society, at 104½ West Grace Street, Richmond. By the way, don't

forget this office is always ready to answer any questions, as far as it can, for you.

The meeting will not be lacking in social features for those who wish to combine pleasure with business, so be sure to have your wives and daughters with you. The golf tournament will start at 10 A. M. on Tuesday, the 14th. Those desiring to play in this tournament should communicate promptly with Dr. H. S. Henkel, chairman of the Golf Committee. The golf links will be open to all members of the Society at all times. Several of the schools will give entertainments for the visitors and there will be dances and automobile rides. The Women's Auxiliary of the Society will hold its first meeting on Wednesday, at 10:30 A. M., at Stonewall Jackson Hotel. Urge the ladies in your families to attend this meeting.

You will miss a good time if you do not attend the Staunton meeting. Be sure to be on hand.

Medical College of Virginia.

In spite of increased accommodations for students, it is announced that more than fifty freshmen and a hundred more who wished to enter advanced classes have been turned away from the Medical Department of the Medical College of Virginia. The departments of dentistry and pharmacy had not been filled to capacity at the beginning of this month.

A new chair has been established in the school of medicine, that of neurological surgery, with Dr. C. C. Coleman as professor and Dr. J. G Lyerly as his associate. Dr. H. L. Osternd succeeds Dr. Noback as professor of anatomy; Dr. Charles H. Phillips, recently of Wake Forest, N. C., succeeds Dr. Ward H. Cook as professor of pathology; Dr. H. F. Bascom will be associate professor of anatomy; Mr. L. C. Bird associate in bacteriology; Miss Kate Harman and Manuel Passamaneck assistants in bio-chemistry; Dr. Pauline Williams instructor in pathology; Dr. K. Hosol assistant in pathology; W. R. Bond and H. V. Haag assistants in physiology and pharmacology; Dr. R. W. Fowlkes will be instructor in dermatology; Dr. Charles Bidgood intructor in genito-urinary surgery; Dr. J. Kirk Richardson assistant in gynecology; H. D. Coghill assistant in the department of nervous and mental diseases; Dr. J. G. Terry assistant in nervous and mental diseases; Dr. D. M. Faulkner associate in orthopedic surgery; and Dr. F. W. Shaw associate professor in bacteriology.

Vacations of Virginia Doctors Continue.

Dr. Turner S. Shelton and family, of Richmond, in August went by automobile for a visit to Ocean View and Norfolk, Va.

Dr. P. A. Irving, Farmville, has returned home after a stay at Massanetta Springs, Va.

Dr. and Mrs. J. Kirk Richardson, Richmond, spent their vacation visiting friends at Warrenton, N. C.

Dr. J. S. DeJarnette, Staunton, visited Dr. George W. Brown, of Williamsburg, Va., in August.

Dr. and Mrs. Paul W. Howle were among the Richmonders summering at Mountain Lake, Va.

Dr. and Mrs. B. B. McCluer, Speedwell, Va., recently visited Dr. McCluer's parents at Bon Air, Va.

Dr. and Mrs. H. Norton Mason returned home about the middle of August after a visit to Quebec and other northern places of interest.

Dr. W. G. Trow, Warrenton, Va., spent his vacation with a number of friends in a camping party on the Shenandoah River.

Dr. Garnett Nelson, Richmond, spent the month of August at White Sulphur Springs, W. Va.

Dr. Joseph A. White, Richmond was another of the Virginia doctors at this resort.

Dr. Meade S. Brent, Petersburg, Va., has returned home after a visit to his old home at Heathsville, Va.

Dr. M. P. Doyle and family, of Norfolk, Va., visited relatives in Dinwiddie County, Va., before going on a motor trip to Atlantic City, N. J.

Dr. and Mrs. A. G. Brown, Jr., Richmond, are returning to the city the middle of September, after a motor trip with friends through the North and later a stay at Swampscott, Mass.

Dr. George Snead, Washington, D. C., has been a recent visitor at his former home at Fork Union, Va.

Dr. and Mrs. Armistead L. Wellford returned to their home in Richmond, the latter part of August, after a visit to their son in Pulaski, Va., and later a stay at Mountain Lake, Va.

Dr. and Mrs. Thos. P. West, Bedford, Va., spent a short time in August at White Sulphur Springs, W. Va.

Dr. and Mrs. W. S. Beazley and daughters, Richmond, have returned from a motor trip

to New York. While there they visited Dr. W. S. Beazley, Jr., who recently completed an internship at St. Francis Hospital, Jersey City, N. J., and is now established for further work at the New York Foundling Hospital.

Dr. and Mrs. Preston Hoy, Petersburg, spent their vacation at Ocean View, Va.

Dr. C. V. Montgomery and son, South Hill, Va., have returned home after a fishing trip in Gloucester County, Va.

Dr. Robt. C. Bryan and Dr. Carrington Williams, Richmond, left the latter part of August for Biddeford Pool, Maine, to spend their vacations with their families who have been summering there.

Dr. and Mrs. G. B. Barrow, Clarksville, recently spent sometime at Ferrum and Danville, Va.

Dr. and Mrs. Francis W. Upshur, Richmond, left the latter part of August for a motor trip which included a visit to many points of interest in the Valley of Virginia and in the New England States and Canada.

Dr. and Mrs. S. T. A Kent, Ingram, Va., visited their daughter in Pulaski, Va.

Dr. and Mrs. Frank K. Lord, Richmond, left recently for a motor trip through the New England States.

Dr. Hunter McClung, of Lexington, was a recent visitor at Crozet, Va.

Dr. G. W. Brown, Williamsburg, is home again after attending a meeting of the General Board for Hospitals for the Insane at Marion, Va.

Dr. W. T. Graham, Richmond, spent his vacation in visiting places of interest in Canada.

Dr. N. G. Wilson returned to his home in Norfolk the latter part of August, after a visit to Pulaski, Va.

Dr. and Mrs. Eugene Eggleston have returned to their home in Richmond after a motor trip to Washington, Baltimore, Philadelphia, New York and Atlantic City.

Dr. and Mrs. L. S. Foster, Williamsburg, recently spent some time in Norfolk, Va.

Dr. and Mrs. E. C. S. Taliaferro and family, of Norfolk, are occupying their usual cottage at Crockett Springs, Va.

Dr. Roy D. Adams, Washington, D. C., has been visiting relatives at Harrisonburg, Va.

Dr. and Mrs. A. C. Monroe and family, of Richmond, spent their vacation on a motor trip and, among other places, visited Natural Bridge, Va.

Dr. Paul C. Colonna, formerly of this State, has just returned from a visit of several weeks in Europe and resumed his professional work in New York City.

Dr. Lazarus Karp has just returned to his home in Richmond, after a stay of several weeks in Philadelphia, where he attended medical clinics in electrotherapeutics.

Dr. and Mrs. E. H. Alderman, Williamsburg, are on a trip which includes visits to Washington, Niagara Falls and several places in Ohio.

Dr. George G. Hankins, of Phoebus, who is now at General Hospital, Philadelphia, recently visited friends and relatives in Williamsburg, Va., and vicinity.

Dr. and Mrs. Roshier W. Miller, Richmond, spent their vacation visiting relatives in Pennsylvania.

Dr. and Mrs. U. H. Johnson and sons of Barhamsville, Va., have been the guests of friends in Louisa, Va.

Dr. and Mrs. J. N. Upshur have returned to their home in Richmond after spending several weeks in Gloucester County, Va.

Dr. and Mrs. Charles R. Grandy, of Norfolk, have been spending their vacation visiting in Nova Scotia and other northern places.

Dr. P. G. Hamlin, of the Eastern State Hospital staff, Williamsburg, was a recent visitor in Richmond.

Dr. Sydney J. Baker, Richmond, left recently for New York where he will spend several months studying.

Dr. and Mrs. W. R. Whitman and family, Roanoke, spent sometime in August visiting relatives in Pulaski County, Va.

Dr. Thomas E. Hughes, Richmond, with a party of friends, attended the Horse Show held in Warrenton, Va., late in August.

Dr. and Mrs. Leslie B. Wiggs have returned to their home in Richmond from a motor trip through the Great Lakes' section. They visited a number of the resorts in that section.

Dr. and Mrs. James H. Smith, Richmond, spent sometime in August visiting relatives in Berryville, Va.

Dr. and Mrs. B. B. Dutton, Jr., have returned to their home in Winchester, after a visit to relatives in Middlesex County, Va.

Dr. and Mrs. Lawrence T. Price, Richmond, visited Dr. Price's former home in Botetourt County, Va., while on their vacation.

Dr. and Mrs. W. A. Shephard, Richmond, left the first of September for a stay of several

weeks at their camp, Wilbodan Lodge, in Bath County, Virginia.

American Congress on Internal Medicine.

Dr. Willian Gerry Morgan and his convention committee have started in, at this early date, to make the biggest kind of a success of the 1925 session of the American Congress on Internal Medicine, which is to meet in Washington next May. Five thousand visiting physicians are expected in the national capital at that time, and the hotel and entertainment committees are even now whipping details into shape for the reception of the guests. The committees hope to make this the most successful meeting in the history of the Congress. The program now being planned is a comprehensive one which will include active participation by every physician in Washington—from the most noted down to the newest interne. It will include every department of the United States Government health service, and the medical heads of the army, navy and Public Health Service are active members of the executive committee.

Dr. Morgan, president of the Congress, who is also general chairman of the convention committee has just announced this revised committee personnel:

Executive — Dr. William Gerry Morgan, chairman; Admiral E. R. Stitt, Gen. M. W. Ireland, Gen. H. S. Cumming, Dr. Hubert Work, Dr. George M. Kober, Maj. William C. Borden, Dr. Phillip S. Roy, Dr. Noble P. Barnes, Dr. Harry C. Macatee.

Program—Dr. William A. White, honorary chairman; Dr. J. Russell Verbrycke, chairman; Capt. A. W. Dunbar, U. S. N.; Col. R. U. Patterson, U. S. A.; Asst. Surg. Gen. E. C. Smith, U. S. P. H. S.; Dr. Frank Leech, Dr. William J. Mallory, Dr. J. Lawn Thompson.

Arrangements—Dr. E. Y. Davidson, chairman; Dr. John B. Nichols, Dr. Thomas A. Groover, Dr. D. V. Stuart, Dr. John M. Ladd.

Publicity—Dr. Wilfred M. Barton, chairman; Dr. James A. Gannon, Dr. A. B. Bennett, Dr. Benjamin F. Weems, Dr. B. M. Randolph.

Entertainment—Dr. Edgar A. Copeland, chairman; Dr. W. Cabell Moore, Dr. A. Camp Stanley, Dr. W. D. Tewksbury.

Hotels—Dr. C. B. Conklin, chairman; Dr. Ernest Mitchell, Dr. A. M. MacDonald, Dr. John A. Foote, Dr. E. G. Seibert.

Transportation—Dr. A. W. Boswell, chairman; Dr. Charles M. Beall, Dr. William Earl Clark, Dr. R. Lyman Sexton.

Ladies—Dr. A. Frances Foye, chairman; Dr. Ada R. Thomas, Dr. Louise Taylor Jones, Dr. Edith SeVille Coales.

Report of Scientific American Abrams Investigation Committee.

In the department of *Analyses, Selections, Etc.*, there appears the report of the *Scientific American* Abrams Investigation Committee. In view of the interest *pro* and *con* the Abrams treatment, we bring this report to the attention of our readers.

Married.

Dr. Paul V. Anderson and Mrs. Alice Boatwright Anderson, of Richmond, Va., August 23.

Dr. Henry Page Mauck, of Richmond, and Miss Harriet Morrison Hutcheson, of Rockbridge Baths, Va., September 10.

Dr. Minor Carson Lile and Miss Elma Chapin Collins, both of Seattle, Wash., the latter part of August. Dr. Lile is a son of Professor and Mrs. William Minor Lile, of University, Va., and graduated from the Medical Department of the University in 1914.

Dr. Marion Howell Watson, Chatham, Va., and Miss Alma Anne Mays, Charlottesville, Va. Dr. Watson graduated this year from the Medical Department of the University of Virginia and was appointed an interne at University Hospital.

Dr. Lucius G. Gage and Miss Margaret Elizabeth White, both of Charlotte, N. C., August 16th.

Dr. R. J. Payne

Is a member of the new City Council of Fredericksburg, Va., which held their first meeting on September 1.

Two Doctors Enter Upon Duties as Mayors.

On the first of September, Dr. J. Fulmer Bright entered upon his duties as mayor of the city of Richmond, and Dr. Julian F. Ward of the city of Winchester.

Dr. Haskell Receives Award.

Dr. C. C. Haskell, Richmond, professor of pharmacology and physiology at the Medical College of Virginia, has been awarded one-half of the research fund of the American Pharmaceutical Association for 1924-1925, in recognition of the excellence of the research work published by him during the past year. The other half of the fund was divided between two scientists from Johns Hopkins and the University of Maryland. Dr. Haskell has been a member of the faculty of the Medical

College of Virginia since 1912 and has published a great deal of research work.

Dr. Holcombe McG. Robertson,

Recently connected with public health work in Virginia, has been transferred to the U. S. Marine Hospital at Chelsea, Boston, Mass.

Virginia Mortality Statistics.

The Department of Commerce announces that the 1923 death rate for Virginia was 1,283 per 100,000 population, as compared with 1,209 in 1922. This increase is largely accounted for by increases in the death rates from influenza, measles, whooping cough and pneumonia. Decreases are shown in death rates from tuberculosis, nephritis and diphtheria.

Dr. William P. McGuire Improved After Operation.

Dr. William P. McGuire, one of the most prominent physicians and citizens of Northern Virginia and an ex-president of the Medical Society of Virginia, is reported as getting along nicely after an operation at Brady Clinic, Johns Hopkins Hospital, the last of August.

Dr. and Mrs. Leland E. Cofer,

Of New York, sailed the middle of August for Europe, where Dr. Cofer will attend the medical section of the League of Nations at Geneva, during the latter part of August and September. Dr. Cofer, now connected with the U. S. Public Health Service, is a native of Richmond and an alumnus of the Medical College of Virginia.

Dr. N. Thomas Ennett,

Richmond, who has been medical director of the Richmond public schools since 1911, has been made full time medical director of the schools, effective September 1.

Urgent Health Matters.

Dr. Ennion G. Williams, State Health Commissioner, has recently sent out two circular letters to the physicians of the State. Every doctor who received these would do well to look them over, for it is "line upon line and precept upon precept," after all, which presses home truths which may seem almost commonplace—so far as the doctor is concerned.

Be suspicious of diphtheria in any case of sore throat and have cultures made. This work is done without charge by the State Board of Health. Remember that diphtheria antitoxin and toxin-antitoxin may be had at cost by physicians.

These letters also lay emphasis on the precautions to be taken in vaccinating against smallpox, which is such a general procedure at this time when schools are opening.

The State Board of Health has just completed the tabulation of history sheets in the first eleven counties in which tuberculosis clinics were held this summer. Of 1,281 patients examined, only 162 were under a physician's care at the time of the examination, while 853 needed a physician's care. All the patients were urged by the clinicians to see their own physicians. The clinicians, of course, do not again communicate with the patients, but the State Board of Health endeavors once a year to remind the patients to keep in touch with their physicians.

Urgent Need of Improved Conditiors in Maternal Welfare.

A nation-wide movement for improved conditions in maternal welfare is being inaugurated through the combined efforts of a joint committee representing the American Gynecological Society, the American Child Health Association, and the American Association of Obstetricians, Gynecologists, and Abdominal Surgeons. The reason for this propaganda is due to the fact that a comparison of the maternal mortality rate of the United States with that of seventeen of the civilized nations of the world shows the United States as having the third highest death rate in sepsis and eclampsia—both largely preventable. It is also claimed that there has been no general reduction in these obstetrical accidents in twenty-five years, though in sections where prenatal care and modern methods of asepsis are observed, the rate is reduced by one-third to one-half.

The organizations working for an improvement in these statistics appeal to societies to stress the subject of obstetrics in the programs of their meetings and try to have more papers and discussions on topics vital to this most essential branch of medicine. Dr. George Clark Mosher, Kansas City, Mo., is chairman of the Committee on Maternal Welfare, representing the American Association of Obstetricians, Gynecologists, and Abdominal Surgeons.

The Southside Virginia Medical Association

Will hold its next regular meeting in Richmond on Tuesday, September the 16th. This meeting is expected to be one of unusual interest, as it is the first time the Association has met in Richmond. Dr. Murat Willis, Dr. C. C.

Coleman and Dr. A. S. Brinkley constitute the committee of arrangements. Meetings will be held in the Library of the Johnston-Willis Hospital and supper will be served the doctors on the roof garden of the hospital that evening. Dr. George H. Reese, Petersburg, is president and Dr. R. L. Raiford, Sedley, secretary of the Association.

Do You Know of any one Who Should be in this Book?

Dr. W. Moore Thompson, of 1234 Marshall Field Annex, Chicago, Ill., writes that he is compiling a book on "The Doctor in Other Fields" and wishes to make it as representative as possible of our American doctors who have attained fame in fields other than that of medicine. We would be glad for any of our readers to advise Dr. Thompson or this office promptly, giving names of men who are entitled to notice in such a book, together with photos and histories of their lives and accomplishments.

National Research Council Officers.

Dr. Ludvig Hektoen, of Rush Medical College, Chicago, has been elected chairman of the Division of Medical Sciences of the National Research Council for the coming year, and Dr. Victor C. Vaughan, Washington, D. C., vice-chairman. In addition to Drs. Hektoen and Vaughan, the executive committee comprises Dr. Clarence M. Jackson, of the Univrsity of Minnesota, Medical School, Dr. William H. Howell and Peyton Rous, of Johns Hopkins University, Medical Department, and Dr. George W. McCoy, of the U. S. Public Health Service.

Dr. R. M. Slaughter,

Formerly treasurer of the Medical Society of Virginia, who has lived for a number years near Alexandria, Va., has moved to 1430 Rhode Island Avenue, Northwest, Washington, D. C.

A Medical Chautauqua.

The Second Councillor District Medical Society of the Ohio State Medical Association has adopted a rather interesting feaure of securing prominent speakers from the medical profession each year to give a series of lectures. The speakers include some of the best talent in the country and are paid for their services. The audiences are composed largely of general practitioners who in this way take a kind of post-graduate course.

This year the course will be held in Dayton, September 22-26, there being two speakers on each day of the five days. The lectures last from 10 A M. to 5 P. M., with one hour intermission for lunch, and each lecturer has one hour at a time. The speakers this year are: Dr. J. Shelton Horsley, Richmond, Va.; Dr. Stewart R. Roberts, Atlanta, Ga.; Drs. Joseph C. Beck, J. Rawson Pennington, Clifford G. Grulee, and Frank Smithies, Chicago; Dr. W. L. Dunn, Asheville, N. C.; Dr. D. E. Jackson, Cincinnati, O.; Dr. Wm. Engelbach, St. Louis, Mo.; and Dr. Haven Emerson, New York City. They will speak on a large variety of subjects representative of their specialities.

Dr. John B. Bullard,

Richmond, announces removal of his offices to 1100 West Franklin Street, this city.

Dr. Harry D. Howe,

Hampton, Va., has been appointed consulting surgeon at the National Soldiers Home, Va.

Urologist at Lawrence Hospital.

Dr. Charles O. Delaney, of the class of '19, Jefferson Medical College, recently of Gastonia, N. C., has been made a member of the staff of Lawrence Hospital, Winston-Salem, N. C., and will be in charge of the urological department. He succeeds Dr. W. Calhoun Stirling, who recently moved to Washington, D. C., where he will specialize in urology.

Dr. Homer B. Luttrell,

Formerly of Amissville, Va., after a year's internship at St. Francis Hospital, Jersey City, N. J., has located at Bramwell, W. Va. Dr. Luttrell is an alumnus of the Medical College of Virginia, of the class of '23.

A New Chair at Jefferson Medical College.

In recognition of the far reaching developments of bronchoscopy in the diagnosis and treatment of diseases of the lungs and of esophagoscopy and gastroscopy in the diagnosis and treatment of diseases of the esophagus and stomach, the Board of Trustees and Faculty of The Jefferson Medical College have created a new Chair to be known as the Department of Bronchoscopy and Esophagoscopy. Dr. Chevalier Jackson, formerly Professor of Laryngology in The Jefferson, has been elected to the Professorship of the new Department.

Dr. Fielding O. Lewis has been elected to fill the Chair of Laryngology vacated by Dr. Jackson.

Colonel Micaiah Boland,

After spending May, June and July on leave

in the United States, has returned to Port au Prince, Haiti, where he has resumed his duties as Medical Director of the Gendarmerie d'Haiti. Colonel Boland has many friends in this section and has been a member of the Medical Society of Virginia for a number of years.

Dr. Randolph M. Gilliam,

Who has been specializing in surgery at the Mayo Clinic, Rochester, Minn., has located in Knoxville, Tenn., where he will make his future home. Dr. Gilliam is a member of the class of '19, University of Virginia Medical School.

Two Doctors Hurt as Car is Ditched.

Dr. and Mrs. C. T. Carter and Dr. Luther Robertson, of Danville, Va., were hurt in an automobile accident, on the evening of August the 24th, when their car went over a fifteen foot embankment. The accident occurred when they attempted to get out of the way of a car coming at high speed in a driving rain. Their injuries were more painful than serious.

Dr. Tom A. Williams,

Washington, D. C., by invitation will give a series of Mental Hygiene Clinics in Pennsylvania beginning September 15th. These have been arranged under the auspices of the Woman's Welfare Association in Washington, of which Dr. Williams is Director of the Clinic of Nervous Disorders and Mental Hygiene. Associated with him are Dr. K. W. Kinney and Dr. D. D. V. Stuart, while Miss Kathlene Johnson, a Bryn Mawr graduate, the daughter of the Rector of St. John's Church, is in charge of the Social Service.

Dr. James A. Wilkins,

Of Norfolk, Va., announces that he will make frozen sections and microscopic diagnoses of pathological tissues in addition to the practice of internal medicine. He has offices at 550 Monroe Building, that city.

The Valley Medical Association,

At its last meeting held in Harrisonburg, Va., voted to dispense with the scientific part of the program and to hold its Fall meeting in Staunton during the convention of the State Society. They will have a get-together dinner one evening for the election of officers and the transaction of necessary business. Dr. J. M. Emmett, Clifton Forge, is president, and Dr. A. F. Robertson, Jr., Staunton, secretary.

The Southern Medical Association

Will hold its next meeting in New Orleans, November 24-27, under the presidency of Dr. Charles L. Minor, of Asheville, N. C. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., is secretary-manager of the Association.

Dr. Rea Parker,

Smithfield, Va., was appointed by Governor Trinkle as a delegate to represent Virginia at the fifty-fourth annual congress of the American Prison Association, which met in Salt Lake City, August 15-22.

Dr. Fred E. Hamlin,

Of Staunton, Va., is in Philadelphia, where he has recently received appointment as resident physician in the Department of Otolaryngology at the Medico-Chirurgical Hospital, connected with the University of Pennsylvania. He will be at this hospital until July, 1925.

American Proctologic Society.

Upon adjournment of the annual meeting of the American Proctologic Society in New York, June 25th, some twenty of the members journeyed to London on invitation of the English Fellows who are the leaders of the specialty in Great Britain. There, on July 9-11, they met in conjunction with the sub-section on Proctology of the Royal Society of Medicine with Mr. Aslett Baldwin, the president, in the chair. Many interesting papers were read and discussed by members of both societies.

The American proctologists were most lavishly entertained by their Englin hots, from the opening luncheon at the Royal Automobile Club, to the closing banquet at the Hotel Langham.

The officers of the American Proctologic Society elected for the year 1924-1925 are: president, Dr. Frank C. Yeomans, New York; vice-president, Dr. William A. Rolfe, Boston; secretary-treasurer, Dr. Jos. F. Montague, New York.

Health Inspector of Richmond.

Dr. B. B. Bagby, health officer of Henrico County, Virginia, and acting health officer of Richmond since the resignation of Dr. C. C. Hudson, has been appointed chief medical inspector of Richmond, by Dr. W. Brownley Foster, newly appointed director of Public Welfare. Both will enter upon their duties October 1.

Doctors Serve on Committees on National Defense Day.

In addition to the large number of doctors who will serve on mobilization day—Septem-

ber 12th—in the cities of the State, the following doctors are among those who have been appointed to serve in the counties in which there are no military units: Drs. J. L. Hamner, Mannboro; G. T. Harris, Madison Heights; F. H. Lukin, Pamplin; L. D. Pole, Hot Springs; A. B. Woolwine, Ceres; P. K. Graybill, Fincastle; E. Hale Connelly, Alberta; B. O. Wire, Grundy; C. W. Tucker, Drakes Branch; Thos. G. Pretlow, Chester; R. P. Stryker, New Castle; C. A. Ransom, Falls Church; G. L. Morriss, Buckingham; John G. Broaddus, Bowling Green; John A. Tipton, Hillsville; R. B. Davis, Holdcroft; Otis Marshall, Culpeper; Carter Weisiger, Cumberland; T. C. Sutherland, Tiny; J. N. DeShazo, Center Cross; F. M. Brooks, Swetnam; S. W. Maphis, Warrenton; R. T. Akers, Alum Ridge; J. J. Nelson, Columbia; F. P. Brammer, Callaway; E. L. Caudill, Narrows; D. O. Clements, Ordinary; W. M. Holman, Lee; J. S. Hopkins, Independence; T. J. Stanley, Beaver Dam; C. B. Fox, Monterey; Rea Parker, Smithfield; A. M. Sneed, Toano; V. O. Carruthers, Ferrell; Hawes Campbell, Enfield; T. B. Latane, Stevensville; F. W. Lewis, Morattico; P. D. Pence, St. Charles; John A. Gibson, Leesburg; E. A. Terrell, Fredericks Hall; E. L. Kendig, Victoria; Horace Hoskins, Saluda; W. L. Early, Wolftown; C. C. White, Mathews; W. D. Meeks, Massies Mill; U. H. Johnson, Barhamsville; J. R. Parker, Providence Forge; G. W. Holland, Eastville; L. E. Cockrell, Reedville; F. G. Scott, Jr., Orange; Virgil Hammer, Luray; G. T. Divers, Stuart; T. S. Hening, Jefferson; T. L. Brooks, Oceana; F. W. Hornbaker, Occoquan; J. W. Tipton, Dublin; E. W. Brown, Washington; B. A. Middleton, Emmerton; C. H. Davidson, Lexington; W. A. Vaughan, Timberville; C. B. Greear, Honaker; C. R. Fugate, Clinchport; W. C. Ford, Woodstock; J. D. Buchanan, Marion; H. W. Patton, Hemp; W. D. Prince, Stony Creek; Chas. E. Dyer, Jewell Ridge; J. W. Witten, North Tazewell; W. N. Chinn, Hague; H. M. Miles, Norton; J. T. Graham, Wytheville; L. O. Powell, Seaford.

Dr. Levy Tendered Farewell Party.

On the occasion of his birthday, August the 11th, employees and officers of the Department of Public Welfare tendered Dr. E. C. Levy, a birthday party at Pine Camp Hospital, this city, which was also in the nature of a farewell party. Dr. Levy retires as director of Public Welfare on October 1st, when Dr. W. Brownley Foster, the new appointee, takes his place. On this occasion, Dr. Levy was presented with a silver fruit bowl and a pair of silver candlesticks, and a large birthday cake was cut and refreshments served at a party following the ceremony.

Site Bought for Hospital in Warrenton.

At a meeting of subscribers to the Fauquier County Hospital in Warrenton, Va., this summer, it was voted to buy a piece of property in that town which has been operated for the last year as a private sanitarium, and to equip it for use as a hospital. The house contains twenty rooms and three baths, in addition to a basement. The house will be rented until such time as sufficient funds are in hand to equip and open the hospital.

The American Child Health Association

Will hold its second annual meeting in Kansas City, Mo., October 14-16, inclusive, in the Grand Avenue Temple.

The American Public Health Association follows closely after this with its annual meeting in Detroit, Mich., October 20-22, inclusive.

The Clinical Congress of American College of Surgeons

Will hold its fourteenth annual session in New York, October 20-24, with headquarters at the Waldorf-Astoria. Dr. Albert J. Ochsner, Chicago, is president, Dr. Charles H. Mayo, Rochester, Minn., president-elect, and Dr. Franklin H. Martin, Chicago, director-general. Clinics will be held at the various New York and Brooklyn hospitals during the mornings and afternoons and most of the scientific sessions will be held in the evenings.

The Children's Memorial Clinic of Richmond

Was formally opened for inspection on August the 6th and was opened for work the following day. Dr. Basil B. Jones, of this city, is medical director and head of the pediatric department of the institution. The board of managers is composed of the heads of the agencies doing child welfare work in this city. It will be primarily a diagnostic clinic and will also have a psychopathic department.

Dr. India Hunt,

For the past session assistant in bacteriology and pathology in the Medical Department of the University of Virginia, has been working this summer as State clinician in the Tubercu-

losis Division of the State Board of Health. In January, Dr. Hunt will go to Rochester, Minn., to accept a medical fellowship in the Mayo Clinic.

Dr. A. P. Traynham,

Richmond, has been appointed coroner of Henrico County, Virginia, to fill the unexpired term of Dr. J. Fulmer Bright, resigned.

Health Board of Fredericksburg, Va.

Dr. J. N. Barney has been re-elected city health officer of Fredericksburg, Va., and Dr. Lee Cooke and Dr. F. T. Cassiday have been elected members of the city health board.

Doctors Win Honors Among the Gunners.

At the annual tournament of the Virginia Trapshooters' Association in Roanoke early this month, Dr. W. R. Sherrick, Richmond, captured honors as amateur champion for the State double target trap-shooting, and Dr. L. G. Richards, Roanoke, was the winner of both the amateur single target championship and the amateur all-round championship.

Guinea Pigs For Sale.

Prices reasonable. Apply Health Officer, Newport News, Va. (Adv.)

Position Wanted—

As doctor's assistant, by undergraduate nurse. Three years' experience as assistant to general practitioner. Have knowledge of stenography, bookkeeping and the simpler routine of laboratory work. Splendid recommendations. Willing to start on small salary. Address No. 356, care this journal. (Adv.)

Obituary

Dr. Samuel Wilson Hobson,

Of Newport News, Va., was found dead in his bed on the morning of August the 9th, death having been caused by angina pectoris, according to doctors who examined the body. Dr. Hobson was born in Powhatan County, Va., fifty-three years ago and studied medicine at Medical College of Virgina, from which he gradnated in 1891. He shortly thereafter located in Newport News and had since lived and practiced in that city. Dr. Hobson was for a number of years a member of the State Board of Health and, at the time of his death, was physician for the Newport News Shipbuilding and Dry Dock Company and on the medical staff of the Chesapeake and Ohio Railway Company, in addition to being engaged in private practice. Dr. Hobson was a member of his local medical society and had been a member of the Medical Society of Virginia since 1896. He is survived by his wife and a daughter and a large family connection.

Dr. Charles Holdsworth Barlow,

A prominent surgeon of Portsmouth, connected with the staff of the Parrish Memorial Hospital, died July 21st, of a stroke of apoplexy. He was born in Portsmouth, Va., in August, 1877, and, after completing his academic education, studied medicine at the University of Virginia, from which he graduated in 1900. After this, he had service at several New York City hospitals before he located in his native town to practice. Dr. Barlow was a member of the Medical Society of Virginia and a fellow of the American College of Surgeons, a prominent member of the Baptist church and a Mason. He was unmarried but is survived by two sisters and an uncle.

Dr. George Russell Cottingham,

Remington, Va., a prominent physician of Fauquier County, died August 23rd, of chronic nephritis. He was born at Ottoman, Va., 45 years ago and, upon completion of his academic education, studied medicine at the University College of Medicine, Richmond, from which he graduated in 1900. He had been a member of the Medical Society of Virginia since 1901. His wife and three daughters survive him.

Dr. William C. Nunn,

Prominent Confederate veteran, died at his home in Richmond, August 7th. He was born in King and Queen County, Va., eighty-nine years ago, and studied medicine at Medical College of Virginia and Jefferson Medical College, Philadelphia, graduating from the last named college in 1856. During the war between the states, Dr. Nunn served as captain of cavalry and was a prominent figure in many of the engagements. After the war, he resumed the practice of his profession and served the people of King and Queen County and West Point, Va., where he made his home, for more than fifty years, before moving to Richmond several years ago. He was the first Virginia democrat to be seated in the State senate after the war. Dr. Nunn was a Mason and an honorary member of the Medical Society of Virginia. He is survived by a large family connection.

Dr. Randolph Bryan Carmichael,

Prominent skin specialist of Washington, D. C., died at his family homestead in Fredericksburg, Va., September 2nd. He had been ill at his home in Washington but was carried to Fredericksburg several days before his death with the hope that he might improve. Dr. Carmichael was fifty-five years of age and graduated from Jefferson Medical College, Philadelphia, in 1889. For a time he practiced in New York but later went to Washington, in which place he practiced until his last illness. He is survived by a brother and two sisters.

Dr. James Waddy Davis

Died at his home in Roanoke, Va., August 8th, aged eighty-one years. He was born in Richmond and studied medicine at the Medical College of Virginia, graduating in 1864. During the war between the states, Dr. Davis served in various confederate hospitals in and around Richmond. After the war he moved to Missouri but later returned to Virginia and located in Roanoke, where he engaged in newspaper work.

Dr. Richard Henry Stuart,

Of Stratford, Va., died at his home in that place, August 20th. He was seventy-two years of age and graduated from Jefferson Medical College, Philadelphia, in 1880. Dr. Stuart is survived by his wife and two sons, one son, Dr. R. H. Stuart, Jr., having died several weeks ago.

Dr. Louis Julien Picot,

Littleton, N. C., former superintendent of the North Carolina State Hospital at Raleigh, and ex-president of the North Carolina State Medical Society, died at a hospital in Norfolk, Va., August 14. He was seventy-one years of age and graduated from Jefferson Medical College, Philadelphia, in 1873.

Dr. John Timothy Geraghty,

Of Baltimore, noted urologist and associate professor of clinical urology at John Hopkins University, Medical School, died at the hospital, August 17th, of abdominal trouble, after an illness of several weeks. He was born in St. Paul, Minn., forty-eight years ago and graduated in medicine from Johns Hopkins University in 1903, later studying in Paris and Vienna. In collaboration with Dr. L. G. Rowntree, of the Mayo Clinic, he originated a method for determining functions of the kidneys, which is now used throughout the world.

Dr. Duncan Lee Despard,

Prominent surgeon of Philadelphia, was shot while in his office, on August 5th, by a former patient believed to be mentally unbalanced, and died a few hours later in the hospital. Dr. Despard was fifty-four years of age. He received his academic education at the Episcopal High School, Alexandria, Va., and the University of Virginia, and studied medicine at Jefferson Medical College, Philadelphia. graduating in 1901. He was assistant professor of surgery at Jefferson Medical College.

Dr. Henry M. Argabright,

Of Clare, Va., died at the King's Daughters Hospital, Staunton, June 17, at the age of sixty-eight. Death was due to diabetes mellitus and myocarditis. Dr. Argabright graduated in medicine from the College of Physicians and Surgeons, Baltimore, in 1879.

Dr. Edmond Souchon,

One of the best known members of the medical fraternity in Louisiana, died at his home in New Orleans, August 5th, aged eighty-two years. He graduated from the Medical Department of the University of Louisiana in 1867. Dr. Souchon designed and superintended the erection of the buildings at Tulane University School of Medicine and was emeritus professor of anatomy and clinical surgery of that school. He was for a number of years president of the Louisiana State Board of Health and was prominently identified with the medical interests of that State.

Dr. Bertram Welton Sippy,

Well known for his work on diseases of the stomach and gastro-intestinal tract, died suddenly of heart disease complicating diabetes, at his summer home near Ludington, Mich., August 15th. He was fifty-eight years of age and received his medical degree from Rush Medical College, Chicago, in 1890. For nearly twenty years he had been professor of medicine at Rush Medical College and the University of Chicago.

Mrs. Mary Kemper Spencer,

Wife of Dr. Hunter B. Spencer, of Lynchburg, Va., died at their home in that place August 25th, after an illness of several months. She was a native of Nelson County, Va.

ILETIN (INSULIN, LILLY)

Purity, Stability and Constant Unitage Essential to Satisfactory Results In the Treatment of Diabetes

As a result of over two years research and experience in the production of Iletin (Insulin, Lilly), we are able to guarantee the purity, stability, and constant unitage of the product.

Purity and Stability—Iletin (Insulin, Lilly) is free from toxic substances and test lots show no deterioration over a period of more than a year.

Uniformity—Our output of Iletin(Insulin,Lilly) necessitates its manufacture in lots running into many millions of units each. This made possible the development of an elaborate system of standardization which enables us to guarantee the unitage within very narrow limits.

The Capacity of the Lilly Laboratories for the production of pure, stable Iletin (Insulin, Lilly) of constant unitage, so essential to the satisfactory treatment of diabetes, is equal to practically any conceivable demand.

Supplied through the drug trade in 5 c. c. ampoule vials, U-10, U-20 and U-40, containing 50, 100 and 200 units respectively. Send for pamphlet.

ELI LILLY AND COMPANY

INDIANAPOLIS, INDIANA, U. S. A.

"THE DOCTORS' SHOPPING PLACE"

¶THE BERRY STORE is favored by Physicians.

¶As they are usually men of unusual discrimination we are flattered.

Hanan Shoes

C. N. Berry & Co.
ESTABLISHED 1879
RICHMOND, VA.

Dunlap Hats

Capital $1,000,000 Surplus Earned $1,000,000

ESTABLISHED 1892

To act as Executor, Guardian and Trustee

$25,000,000

of investments held in Trust

Confidential Interviews Invited.

Say, Doctor---

you can talk to us entirely confidentially about your affairs. Come by and let us answer your questions and advise you about your will.

This bank has friends all over Virginia, many of whom have already seen us about their wills.

Write or phone for a special engagement with Mr. G. Jeter Jones, Vice-President.

MERCHANTS NATIONAL BANK

11th & Main Streets. Richmond, Va.

"Safest For Trusts"

Virginia Medical Monthly

OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

Fifty-fifth Annual Meeting, Staunton, October 14-17, 1924.

Vol. 51, No. 7.
WHOLE No. 868.

RICHMOND, VA., OCTOBER, 1924

$2.00 A YEAR
20 CENTS A COPY

CONTENTS.

Vol. 51, No. 7.
WHOLE No. 868.
ORIGINAL COMMUNICATIONS:

The Treatment of Unilateral Harelip With Special Reference to the Associated Deformity of the Nose. C. C. Coleman, M. D., F. A. C. S., Richmond, Va. ---- 393

Treatment of Adenomata of the Thyroid. Edmund Horgan, M. D., F. A. C. S., Washington, D. C. ---- 399

Osteoma of the Frontal Sinus With Report of a Case. F. H. Lee, M. D., Richmond, Va. ---- 403

Some Practical Considerations of Goiter. Philip S. Smith, M. D., Abingdon, Va. ---- 408

X-Ray Examination of the Appendix: Its Diagnostic Value. Daniel D. Talley, Jr., M. D., Richmond, Va. ---- 413

Etiology, Diagnosis and Medical Treatment of Pyogenic Infections of the Kidney. F. J. Wright, M. D., Petersburg, Va. ---- 416

Focal Infections in the Tonsils and Adenoids. Meade Edmunds, M. D., Petersburg, Va. ---- 418

Intussusception. Frank Helvestine, Jr., M. D., University, Va. ---- 420

Spasmophilia in Infants. St. Geo. T. Grinnan, M. D., Richmond, Va. ---- 423

Review of the Autopsy Service at the University of Virginia Hospital, for the Term 1923-24. India Hunt, M. D., University Va. ---- 426

Why Professional Men Do Not Advertise. Harry Bear, D. D. S., Richmond, Va. ---- 429

Some Aspects of Venereal Disease Treatment. S. G. Gill, A. B., M. D., Norfolk, Va. ---- 431

A Study of Three Hundred Syphilitics. T. Latane Driscoll, M. D., Richmond, Va. ---- 435

Thrush—Report of an Unusual Case. Samuel Newman, M. D., Danville, Va. ---- 435

Radium, X-Ray and Surgery. Samuel Orr Black, A. B., M. D., F. A. C. S., and Paul Black, Roentenologist, Spartanburg, S. C. ---- 437

Chronic Confusional States Simulating Dementia Praecox. Differential Diagnosis. Alfred Gordon, M. D., Philadelphia, Pa. ---- 438

Hodgkin's Disease—Report of a case. A. A. Wilson, B. A., M. D., Oxford, N. C. ---- 443

A Satisfactory Technique for Local Anesthesia in Cystoscopy. Linwood D. Keyser, M. D., Roancke, Va. 446

CORRESPONDENCE ---- 447

THE TRUTH ABOUT MEDICINE ---- 449

BOOK ANNOUNCEMENTS ---- 450

EDITORIAL ---- 451

NEWS NOTES ---- 453

OBITUARY ---- 460

INDEX OF ADVERTISERS—Advertising Page 5.
(For Society Announcements, see page 32).

CALCREOSE

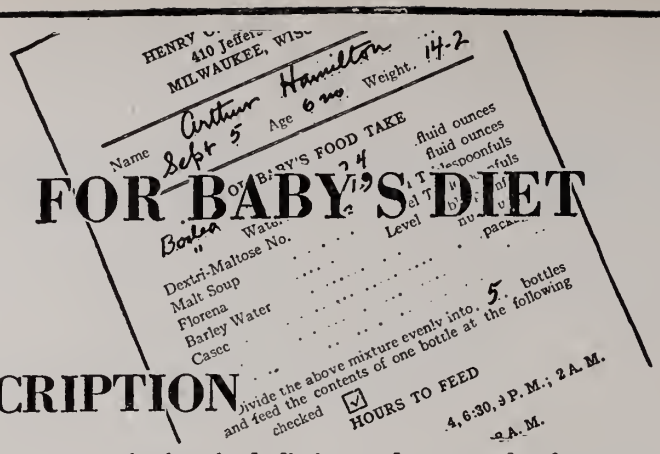
POWDER
TABLETS
SOLUTION

HOW TO GIVE CREOSOTE

IN BRONCHITIS, especially the bronchitis accompanying pulmonary tuberculosis, and in other conditions in which it is desired to administer creosote, the irritant action of creosote in the stomach may be avoided by administer **CALCREOSE** (calcium creosotate) a mixture containing in loose chemical combination approximately equal weights of creosote and lime. It differs from creosote in that it apparently does not have any untoward effect on the stomach.

Samples of Tablets on Request

THE MALTBIE CHEMICAL COMPANY
NEWARK, NEW JERSEY



A PRESCRIPTION

A written prescription is definite and cannot be forgotten.

It also carries with it the authority of the doctor himself.

It is individual—and its individuality shows that *thought* has been given to the baby's individual requirements—the mother is much more interested in her physician's judgment and much less apt to take cognizance of outside interference.

A prescription of

FRESH COW'S MILK, MEAD'S DEXTRI-MALTOSE AND WATER not only gives gratifying results for the average baby but also establishes confidence between the mother and the doctor.

MEAD'S DEXTRI-MALTOSE *can only be prescribed by the physician*—there are no directions on the package.

When DEXTRI-MALTOSE is used as the added carbohydrate of the baby's food the physician himself *controls* the feeding problem.

MEAD'S P & C COD LIVER OIL

A dependable cod liver oil of known origin. Exceptionally high in antirachitic, antiophthalmic and growth values. Mild in taste and well tolerated.

INFANT DIET MATERIALS MEAD'S

MEAD'S CASEC

For preparing a milk modification high in protein and correspondingly low in carbohydrate. For use in Fermentative Diarrhoeas and Marasmus.

MEAD JOHNSON AND COMPANY

EVANSVILLE, INDIANA, U. S. A.

NOTE: We will be glad to print, with the physician's name and address, a set of prescription blanks for use in his infant feeding cases.

MEAD JOHNSON & CO., Evansville, Ind.
Please send me "No Charge"

- ☐ A Set of Prescription Blanks
- ☐ Samples and Literature, Mead's P & C Cod Liver Oil
- ☐ Samples and Literature, Mead's Dextri-Maltose.
- ☐ Samples and Literature, Mead's Casec

_____ M. D.

_____ ST.

CITY_____ STATE_____

Virginia Medical Monthly

Official Organ of the Medical Society of Virginia

Vol. 51, No. 7.
WHOLE No. 868.

RICHMOND, VA., OCTOBER, 1924

20 CENTS A COPY
$2.00 A YEAR

Original Communications

THE TREATMENT OF UNILATERAL HARELIP WITH SPECIAL REFERENCE TO THE ASSOCIATED DEFORMITY OF THE NOSE.

By C. C. COLEMAN, M. D., F. A. C. S., Richmond, Virginia.
Department of Oral Surgery, Hospital Division, Medical College of Virginia.

The principal difficulty of operations for harelip lies in the correction of the associated deformity of the nose. By any one of a number of well-known methods of operation, a successful repair of the lip may be made, provided there is a careful observance of established principles, but the restoration of the nose is often difficult and frequently not attempted by surgeons who perform operations for harelip.

The correction of an unsightly cleft of the lip certainly gives considerable improvement, but the persistence of the nasal deformity greatly mars the cosmetic result. This phase of harelip surgery is fortunately receiving more attention in the recent literture.

The best results in operations for harelip are gotten when operation is done early. The arguments for early operation have been repeatedly emphasized, but one of the most important results of early operation is the effect of the closed lip and alveolar cleft upon the development of the external nose.

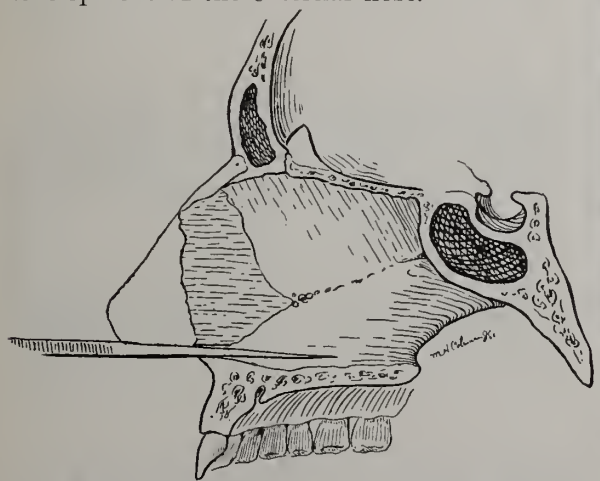


Fig. 1—Method of correcting deviation of the nose. Sectioning of the vomer with the chisel, as described in case 3-h.

In a fairly large series of harelip and cleft palate cases operated upon during the last ten years, the majority of the patients had the lip repaired during the first year, but operation has frequently been done in the first few days after birth. If the child is free from associated serious defects and is otherwise healthy,

Fig. 2—The septum is rotated to the side of the alveolar cleft so that the external nose is brought to the midline. A wire passing through the upper part of the nasal spine is attached to the first bicuspid tooth so as to maintain a midline position of the septum.

Fig. 3—Incomplete harelip. Small towel clips are used to steady the lip while the incision is being outlined. Removal of the thin tissue above the cleft is usually necessary, as indicated in the drawing. The incision is practically the same as that used in the repair of complete unilateral lip cleft. The transverse incisions indicated by the dotted line just above the vermilion border end at points at either side of the cleft, previously determined by measurement with calipers to insure a uniform length of the lip.

the lip should be repaired within the first week or as soon thereafter as possible.

There is a high mortality in babies with clefts of the lip and palate in the first few weeks of life. Davis[1], in a most instructive analysis of twenty-four cases delivered in two Baltimore hospitals, found the mortality to be nearly fifty per cent. A congenital lip cleft is obviously a small factor in this mortality in the first weeks of life, and repair of the lip would be a futile procedure in newborn infants with other serious congenital defects or disease. As the child grows older the lip cleft may interfere with adequate feeding and operation should then be done to improve the general condition. The general care of harelip babies suffering with malnutrition constitutes a considerable problem which is best handled by a competent pediatrist.

We have followed the usual rule of operating on the lip before the palate is repaired. Exceptions probably should have been made in some cases who showed complete indifference to the concealed palate defect after the

Fig. 4—The short curved dotted line on the left side of the lip indicates the excision of the triangular area of skin. This has been done on the right side of the lip. The object of the excision of this small bit of skin is to prevent a white line beneath the vermilion of the newly constructed lip and to permit a full-thickness lip in the line of suture. The stippled area indicates the undercutting of the lip which is necessary in some cases to relax tension and to freely mobilize the alae. The extent of the undercutting varies and is usually greater than is shown in the drawing.

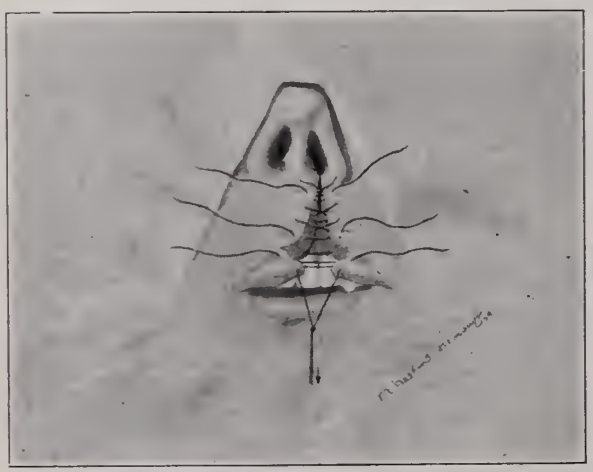


Fig. 5—A traction suture is passed through the tip of the small flaps which were made on either side of the cleft, as outlined in Fig. 3. The intermuscular sutures of fine catgut are shown with the ends crossed ready for tying. The horsehair skin sutures are passed down to but not through the mucous membrane. The lower suture is passed directly through the vermilion border to insure accurate approximation of the border.

1. Davis, John Staige, Annals of Surgery, Vol. 80, 1924.

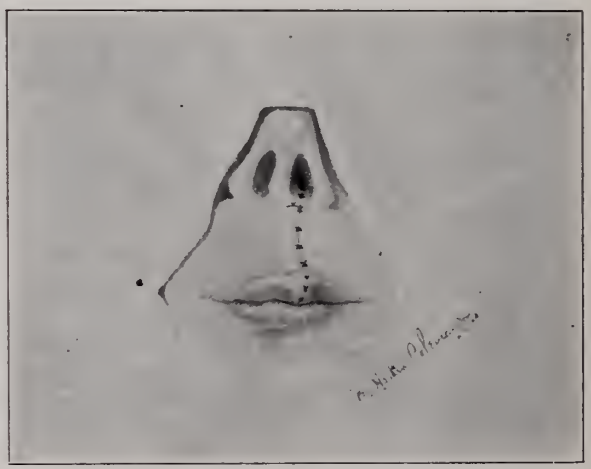
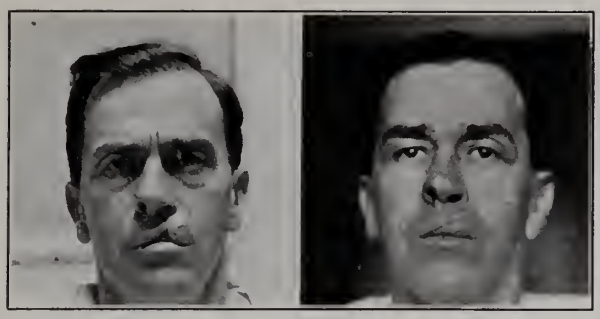


Fig. 6—A deep suture of fine silkworm gut is used at the base of the nostril to prevent spreading. The suture of the lip has been completed by fine horsehair across the mucous border and on to the mucous membrane within the mouth. Note the fullness of the lip along the suture line. There should be a protrusion of the lip at this point at the time of operation to prevent a nick later on after healing is completed. The amount of protrusion when the operation is finisbed should not exceed that which will disappear from the contraction incident to healing.

Case 1-a—The result of a poor harelip operation. There is practically no deviation of the nose but a flaring out of the right nostril. The patient had a wide, complete cleft of the palate. Primary operation in another clinic.

Case 1-b—Appearance of the patient after repair of the lip and complete closure of the palate accomplished at one operation.



Case 2-a—The result of an unsuccessful repair of a unilateral harelip done in childhood. There is a marked defect of the lip border, thinning of the lip up into the floor of the nostril and a deviation of the nasal septum to the opposite side. The patient did not have a cleft palate. Primary operation in another clinic.

Case 2-b—Appearance of patient after repair of the lip under local anesthesia, which is always used for adults when the lip alone is to be operated upon. The infraorbital branch of the left fifth nerve is blocked with two per cent novocain and adrenalin at the infraorbital foramen. This generally gives a complete anesthesia to half of the lip, although occasionally a few drops of the solution have to be injected at the base of the septum. The patient was undergoing treatment for a compound fracture of the left femur at the time of the lip operation. The nick in the lip border was removed and the mucocutaneous junction continued across the lip in one unbroken line. Operation by Dr. E. J. Morrissey.

Case 3-a—Incomplete unilateral harelip without cleft palate. Patient operated upon in early childhood in another clinic for repair of the lip. The photograph shows marked deviation of the nose to the right, a flattening of the left nostril and a defect of the lip persisting after primary operation. The case illustrates a marked nasal defect without an alveolar cleft. The correction of the defect of the external nose could be corrected only by operation upon the nose itself. The defect of the nose was more exaggerated in this patient than in the majority of cases which have cleft palate and an alveolar defect.

Case 3-b—The patient after complete excision of the lip scar and readjustment of the borders. The nose was brought back into a midline position by a modified Senseny operation (Fig. 1) combined with a mobilization of the nasal bones. These were fractured before they could be displaced to the left. The operation upon the nose was by far the most important and difficult part of the correction; the operation upon the lip being relatively simple. (Figs. 1 and 2) the method of correcting a deviation of the nose in unilateral harelip. An incision is made through the mucous membrane at the junction of the lip with the alveolar process and the nasal spine exposed. The mucous membrane is separated from the septum on either side and along the floor of the nasal chambers, very much as in the beginning of a transsphenoidal pituitary approach. A section of the septum is then made with a narrow chisel just above and parallel to the palate, for a distance of about one and one-half inches. The upper part of the septum is then rotated to the side of the lip-cleft and held in position with fine silver wire, (Fig. 2). It has not been found necessary to make the vertical cut in the septum, recommended by Blair. This operation is not necessary in young children but is essential for the correction of a nasal defect in many of the older patients.

obvious deformity of the lip had been corrected. If careful attention is given to the control of bleeding, operation for closure of the lip defect should be practically free from mortality. In our series there was one death three weeks after operation from a continuing malnutrition. The lip had firmly healed. In the same period there have been five deaths in young infants without operation. Some of

Case 4-a—Left unilateral harelip with cleft palate. There is exaggerated rotation of the right side of the alveolar arch with a defect in the arch. The upper part of the lingual surface of the arch is in contact with the opposite segment, so that there could be no correction of the nasal defect by the usual method of mobilizing the longer segment of the arch. The nasal deviation in this case is unusually exaggerated. The midline is indicated by marks in the center of the glabella and chin. The line connecting these points passes through the left ala instead of through the center of the tip of the nose. The repair of the lip without correction of the defect of the nose in such a case gives very imperfect results. The nose was brought to the midline, an operation similar to the one done in Case 3, and the lip repaired by the usual technique.

Case 4-b—Photograph of the patient after complete repair of the lip and palate and correction of the nasal deformity. Note the midline position of the nose and the normal appearance of the left nostril.

Case 4-c—A plaster model of the palate in Case 4. Note the contact of the two segments of the arch and therefore the impossibility of restoring the nose to normal position by fracturing the right segment of the arch and wiring it to the opposite side as is usually sufficient in patients who have alveolar cleft with deviation of the nose to the opposite side.

Case 5-a—A facial deformity with the following features: (a) unilateral harelip (right); (b) macrostomia (right); (c) absence of right auricle; (d) absence of right side of mandible; (e) defect of the right external canthus; (f) cleft palate; (g) hemiatrophy of the right side of face. All of these defects with the exception of that of the mandible are shown in the accompanying photographs.

Case 5-b—Note the appearance of the intermaxillary cleft and the remnants of the external ear with the skin pits often found in these conditions. Most of the cartilage of the deformed ear was buried beneath the skin and two of the pits led to the remnants of the buried ear. The external auditory meatus was developed and hearing on this side was good.

Case 5-c—The full-face appearance of the patient. Note the hemiatrophy of the right side. The position of the external nose is good.

Case 5-d—The appearance of the patient after repair of the lip, intermaxillary cleft and complete repair of the palate. Correction of the defect of the external canthus and ear was not done. Photograph shows lip ten days after operation. The appearance of the right ala is not satisfactory. The intermaxillary cleft was repaired by incisions very similar to those used for the repair of the lip.

the cases who died without operation had serious developmental defects, while in others a satisfactory cause of death was not found.

At the operation for repair of the lip, the alveolar cleft should be closed and wired, unless operation is done within the first month, or the cleft is very narrow. In these cases the tension of the united lip will approximate the alveolar segments. To restore the alignment and union of the alveolus in older children, it is generally necessary to produce a greenstick fracture of the longer segment and wire it in position. The lip is then repaired. We have found that there is usually some flattening of the upper lip just over the end of the shorter segment, even after wiring the alveolus. This flattening is a factor in the nasal deformity and we have found no entirely satisfactory method of overcoming it. In some cases with cleft palate and unilateral harelip the larger segment of the alveolar arch is rotated so that the incisor teeth project almost horizontally and, because of this rotation, the upper part of the alveolus is in contact with the opposite segment (Case 4). This type of deformity causes marked deviation of the nose and is not corrected by operation upon the alveolus itself.

Case 5-e—Plaster model of cleft of palate in Case 5.

Case 6-a—Adult female with left hare-lip and practically no defect of the nostril. There was no cleft of the palate or alveolar arch.

Case 6-b—Appearance of the patient eight days after repair of the lip.

The same type of operation is generally required for incomplete lip clefts as for the com-

plete. From the standpoint of development of the labial muscles, all are complete and the incision must generally remove the attenuated tissue above the cleft until the nostril is opened, if the nasal deformity of the affected side is to be adequately corrected and a full-thickness lip made.

Thompson's plan of placing the incisions by measurement introduces a more precise method of giving uniform length to the lip, and we have found it of the greatest assistance.

The importance of excising enough tissue from the edges of the cleft to give a broad approximation is a detail of technique often emphasized but frequently disregarded. We have considered the floor of the nostril and the vermilion border of the lip the points where absolute accuracy of adjustment and suturing is necessary. Formerly we did not suture the muscles separately, but in later cases this has generally been done with improvement in the results. Boric acid powder is used on the lip after operation but it is not entirely satisfactory because of crust formation. These crusts should be removed on the fourth or fifth day by gently applying saline solution. At this time the removal of the stitches should be begun. If there is much secretion from the suture line at this time, we have found the application of mercurochrome solution very helpful. Fine catgut for the muscle and horsehair for the skin and mucous membrane have given the best results in our cases.

Complete failure of union of a sutured lip

Case 7-a—Boy sixteen years of age with wide cleft of the lip, alveolar process and palate. There is marked deviation of the nose to the right. The position of the tongue is shown between the alveolar clefts.

Case 7-b—Photograph of cleft of alveolar arch and palate.

Case 7-c—Photograph after repair of the lip and correction of the defect of the external nose. Fracturing the right side of the arch and wiring it to the left segment was sufficient to return the nose to the midline position. The patient refused operation for repair of the palate, which would have been relatively simple because of the high palate arch and the moderate width of the cleft. Note the alignment of the lip with a small mucous membrane defect of the lip border. It was proposed to correct this at the time of operation upon the palate.

Case 8-a—Complete cleft of the palate with a notch in the lip, following operation some years ago, in another clinic. The palate was repaired with complete success and the defect of the lip overcome at the same time. To correct the defect of the nose it was necessary to excise the scar of the previous operation.

Case 8-b—Photograph of patient after healing of the lip and palate.

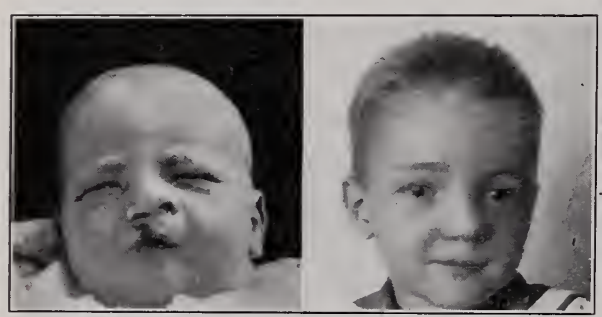
Case 9-a—Right unilateral harelip and cleft palate. The segments of the alveolar process shown almost in contact because of a pointed extremity of the right segment. This extremity was excised and the alveolar process wired by green-stick fracturing of the left side posterior to the canine. At a subsequent operation the lip was repaired by the usual technique.

Case 9-b—Patient after repair of the lip. Operation by Dr. J. G. Lyerly.

is very rare. There was one instance in our series after repair of a double harelip. The child had nasal diphtheria which, if it existed, was overlooked before operation. There was no discharge from the nose until the seventh day. Careful inspection of the nose with culture of any discharge should be a routine.

The problem of anesthetic which was formerly of so much concern in small infants has largely disappeared with the services of a trained anesthetist who takes charge of the anesthetic in all operations about the head and face. Inhalation of small quantities of chloroform from a sponge at a distance for very young infants, ether for older children and infraorbital blocking for adults have given entire satisfaction.

Case 10-a—Unilateral harelip with complete cleft palate in a baby three months of age. There is a moderate defect of the left ala.
Case 10-b—Appearance of the lip five days after operation. Note the crowding in of the left nostril which usually spreads about the eighth or ninth day. The late results were excellent. The palate was repaired when the child was nine months of age. The adhesive strips used to relax the tension on the upper lip are shown.



Case 11-a—Incomplete harelip of the right side with cleft palate. Considerable nasal defect.
Case 11-b—Photograph of the child three years later. Lip clefts of the left side are about four times as frequent as those of the right.

Case 12-a—Complete harelip of the left side without cleft of the alveolar arch or palate.
Case 12-b—Photograph five days after operation. Sutures have been removed. The operation was done under local anesthesia by blocking the left infraorbital nerve.

Case 13-a—Left incomplete unilateral harelip and cleft palate. The lip was repaired when the child was three months of age.

Case 13-b—Photograph of patient at seven months of age. The palate was repaired one month after the lip operation.

Case 14-a—Unilateral harelip with complete cleft of the alveolar arch and palate. Operation on the alveolar arch and lip at two and one-half weeks of age.

Case 14-b—Photograph at ten months of age, after repair of the lip. Appearance of the lip is good and the nasal defect has been corrected.

Case 15-a—Complete unilateral harelip with cleft of the arch and palate. Marked deviation of the nose to the right, with the usual amount of flattening of the left nostril.
Case 15-b—Photograph three months later shows the results of operation upon the lip and closure of the alveolar defect. The palate has not been repaired.

The technique of operation and the results in a group of patients representative of the various types of deformity are illustrated by

Case 16-a—Incomplete harelip with no cleft of the palate or alveolar arch.
Case 16-b—Results six days after operation.

the accompanying drawings and untouched photographs. Some of these patients and many others of the whole series will require later

Case 17—Child four days old. There was no cleft of the palate and a very slight defect of the lip. The defect of the left nostril, however, is very evident. The child died two days after admission to the hospital without operation. Autopsy was refused.

operations for cleft palate. Operative procedures for bilateral harelip and cleft palate will be discussed in a later paper.

Case 18-a—Boy three years of age with left harelip. There was no cleft of the palate. Lip clefts are found in the negro almost as frequently as in the white, but there were only two cases of cleft palate in the series.
Case 18-b—Result of repair of the lip eight days after operation.

503 *Professional Building.*

TREATMENT OF ADENOMATA OF THE THYROID.*

By EDMUND HORGAN, M. D., F. A. C. S.
Washington, D. C.

A thorough clinical and laboratory study should be made of each case of goiter under observation to establish the variety before treatment is instituted as the etiology, pathology and treatment of each variety of goiter is different. The treatment of each, as the etiology and pathology, should be discussed separately. The discussion in this paper will be confined to the treatment of adenoma of the thyroid.

Adenomatous goiter is found mostly in areas which are known as "goitrous districts," but many cases are encountered elsewhere. It is a condition that confronts the surgeon in every clinic. An adenoma of the thyroid can not be diagnosed clinically until it is large enough to be palpated, or until it causes a noticeable enlargement of the neck. Many small adenomata, which are too small to be palpated during life, are found at autopsy. Observation by the patient or clinician is usually first made during puberty or early adult life when the adenomata ordinarily enlarge sufficiently to be noticed. Adenoma of the thyroid may be single or multiple, unilateral or bilateral, and may vary in size up to 15 cm. in diameter, or larger. The adenomata may cause enlargement of the neck anteriorly or laterally, on

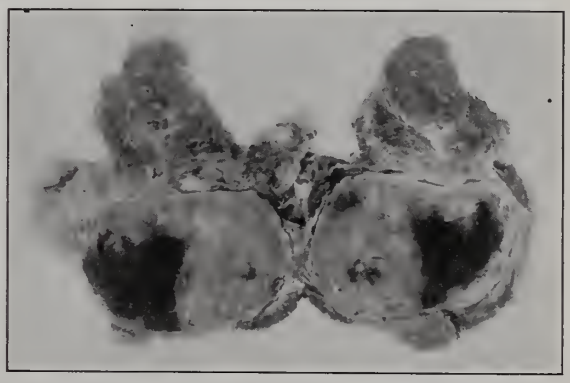


Fig. 1.—Adenoma in right lobe of the thyroid showing recent hemorrhage which had caused sudden enlargement. Right lobe removed at operation.

one or both sides; or they may be substernal, interthoracic, or retrotracheal. They usually enlarge sufficiently to be noticed during pregnancy or early adult life. Growth of an ade-

*Presented before the Medical Society of Virginia, October 16-19, 1923, at Roanoke, Virginia.

noma may be slow or rapid and after attaining a certain size may remain unchanged for years. Enlargement, which may or may not subside thereafter, may be noticed during menstruation or pregnancy. A sudden enlargement of an adenoma may occur at any time. This sudden enlargement is usually due to hemorrhage within the adenoma. Rapid enlargement may be due to malignancy.

The onset of toxic symptoms due to adenomata of the thyroid is so insidious that they may be present for a number of years before being detected. After from five to twenty years' duration, symptoms of hyperthyroidism can usually be detected. There is great variation in the severity of the hyperthyroidism and the amount of tissue damage. Arterial hypertension, myocarditis, tachycardia, dyspnoea, and edema are encountered in varying degrees of severity in the most toxic cases. Pressure symptoms from sudden or progressive enlargement, causing dysphagia, difficult breathing, choking, and hoarseness, may develop at any time. The rate of basal metabolism is not high as a rule, usually being about plus thirty per cent. Occasionally the acinic cells in an adenoma with well developed acini, in an otherwise normal gland, may hypertrophy and by their cellular activity produce all the symptoms of exophthalmic goiter. In such a case the basal metabolic rate may be high. Exophthalmic goiter, with the characteristic changes in the parenchyma of the thyroid, may occur in an individual having an adenoma.

Surgery

Every case of adenoma of the thyroid is potentially a surgical case, but should be primarily a medical one. In young adults, operation should be deferred unless the adenomata are causing pressure symptoms by their retrotracheal, substernal, or interthoracic position, or for cosmetic reasons. After the third decade of life, the patient should be advised to have the adenomata removed surgically to prevent tissue damage by a slowly progressive hyperthyroidism which is characteristic of

Fig. 2.—(Case No. 298). Photograph of resected portions of right and left lobes and isthmus of the thyroid removed at operation for multiple adenomata.

this variety of goiter and which will eventually occur. The arterial hypertension, myocarditis, tachycardia, dyspnoea, and edema, which is encountered in the most toxic cases, should be treated medically until the patient improves sufficiently to be considered a good surgical risk. An X-ray study should be made to determine if the goiter is substernal or interthoracic. The curative treatment of adenoma of the thyroid is the surgical removal. No other treatment has proven effective. Ligation of the superior thyroid arteries is not practiced in adenoma of the thyroid.

The patient is prepared for operation as follows: Light supper in the evening previous to operation; no laxative; soap suds enema morning of operation; no fluids by mouth for four hours preceding operation; morphine, grs. 1/6, hypodermatically two hours before operation; and morphine, grs. 1/6, and atropine, grs. 1/150, hypodermatically thirty minutes before operation.

The patient is placed on the operating table with the shoulders slightly elevated on a cushion and the head extended. The table is changed from a horizontal position to an incline of about fifteen degrees with the head of the table highest. The skin over the operative field is prepared and draped.

Anaesthetic.—The operation may be done under a local or a general anaesthetic, or a combined anaesthesia of nitrous oxide and oxygen with local infiltration of the tissues with novocaine. The combined anaesthesia is to be preferred and has proven to be the most satisfactory. Much depends upon the co-operation of the patient. When the patient is placed in position the inhalation anaesthetic is begun, and just as soon as the operative field is prepared the local infiltration is made. The first injection of novocaine into the tissues is along the posterior border of the sternomastoid muscle on a line with the hyoid bone. An infiltration in this area, done on each side, will anaes-

Fig. 3.—(Case No. 298). Photograph of sectional surfaces through right and left lobes and isthmus of the thyroid, showing multiple adenomata with marked fibrosis throughout the gland. The adenomata show hemorrhagic, hyaline, fibrous, and calcareous degeneration.

thetize all the superficial branches of the cervical plexus supplying the operative field. About 15 c.c. of novocaine is injected into each area. In addition. the subcutaneous tissues on the anterior surface of the neck, over the thyroid, are well infiltrated. When the gland has been resected, the resected lobes sutured, and the blood vessels ligated, the inhalation anaesthetic is stopped. The anaesthesia produced by the novocaine will allow suturing of the muscles and closure of the flaps while the patient is regaining consciousness. By this method the patient is carried through the operation without the pain experienced by the pulling and dragging on the tissues in an operation done under local anaesthesia alone, and is saved the long inhalation required by an operation done under general anaesthesia.

Incision.—A low elliptical incision is made across the anterior surface of the neck, care being taken not to make it too low. The incision is made through the skin, subcutaneous fatty connective tissue, and platysma muscles with one sweep of the knife.

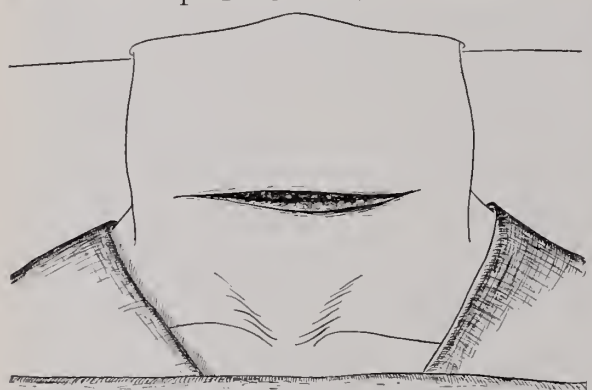


Fig. 4.—Drawing showing the transverse incision on the anterior surface of the neck. With the head fully extended the incision should be made transversely about one inch and one-half above the sternal notch. This incision will leave an elliptical scar that will lie just above the sternal notch when the head is in the normal position.

Flaps.—Two flaps are raised, a superior and an inferior. The superior flap is dissected free up to the thyroid cartilage, the inferior flap down to the sternal notch.

Muscles.—A midline separation of the bellies of the sternohyoid and sternothyroid muscles is made, and, with blunt retractors, the muscles pulled laterally. Division between forceps of one or both sternohyoid muscles will facilitate exploration, delivery of the gland, suturing of the resected lobe or lobes, and tying off the clamped blood vessels.

Exploration.—Exploration of both lobes with the index finger should be made before enucleation of an adenoma or resection of the gland is begun, in order to determine if possible if there are adenomata which could not be palpated during the physical examination, and also to determine if the adenomata are substernal, retrotracheal or interthoracic.

Resection.—The operation should be an enucleation for a single adenoma, and resection of one or both lobes if the adenomata are multiple. It is frequently difficult to remove substernal or interthoracic adenomata until the lobe to which they are attached has been resected. The recurrent laryngeal nerves and the parathyroids can be avoided by remaining above the second division of the inferior thyroid artery.

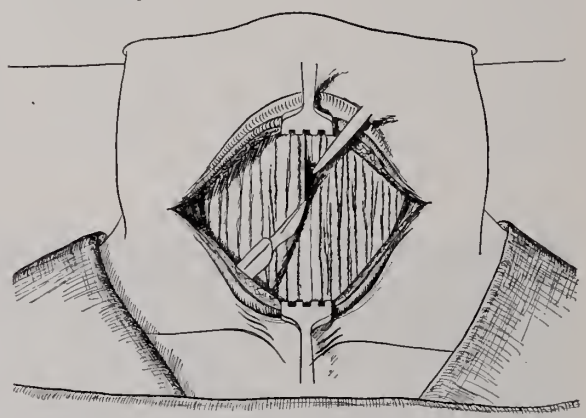


Fig. 5.—Drawing showing the superior and inferior flaps, retracted to expose the sterno-hyoid muscles. The fascia in the midline between the two muscles is cut and the muscles are either retracted or divided to expose and deliver the thyroid gland.

Suture.—The bleeding and oozing from a resected lobe can be controlled by a continuous mattress or locking suture over the raw surface of the lobe. When all of a lobe, except the posterior capsule, has been removed, the clamped vessels are best tied, as sutures may include the recurrent laryngeal nerve and interfere or cut off the blood supply to the parathyroids. Branches of the superior and inferior thyroid arteries and the superior, middle and inferior thyroid veins should be securely tied.

Drainage.—A small amount of oozing will occur from the sutured surface of the gland and to prevent the formation of a hematoma a small soft rubber tube or rubber tissue left in place for 48 to 72 hours will drain off the blood and serum. The formation of a hematoma with the resulting extravasation into the tissues may produce edema of the trachea and larynx. If the oozing is profuse a small gauze

pack may be used and the end allowed to pass through the opening with the drainage tube.

Closure.—The sternohyoid muscles, if divided, should be closed by a continuous locking suture to prevent bleeding from the divided vessels. A few interrupted sutures placed in the midline will hold the muscles in place. The flaps are closed by a continuous suture drawing the platysma together and a continuous subcuticular silkworm suture.

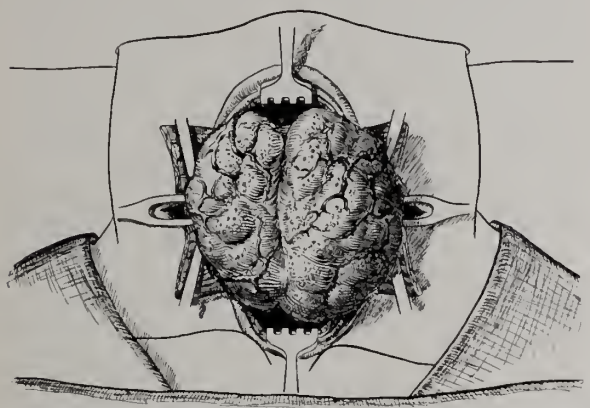


Fig. 6.—Drawing showing transverse division of right and left sterno-hyoid muscles, separation and retraction of sterno-thyroid muscles, and delivery of thyroid gland for inspection and palpation.

Delayed Closure.—If the condition of the patient is such that the operation must be done with great speed for the safety of the patient, or if the condition of the patient becomes alarming during the operation, closure of the wound may be postponed for 24 to 48 hours. The wound is packed loosely with gauze and the gauze allowed to remain until the delayed primary suturing, under nitrous oxide and oxygen anaesthesia, is done in the patient's room.

Tracheotomy.—A trachea, in which the tracheal rings have been softened by pressure, may collapse at any time during the operation, especially while traction is being made to deliver the gland, and if the cyanosis is not removed when the traction is released a tracheotomy should be made immediately. A soft catheter may be passed into the wound made in the trachea and allowed to remain during the operation. When the closure of the wound is begun a tracheotomy tube may be inserted and the wound closed around the tube. This procedure may prevent a death upon the table and save the patient, if promptly executed when necessary.

The greatest co-operation between the surgeon, anaesthetist, assistants and nurses is necessary for the safety of the patient. The highest degree of skill and efficiency is essential.

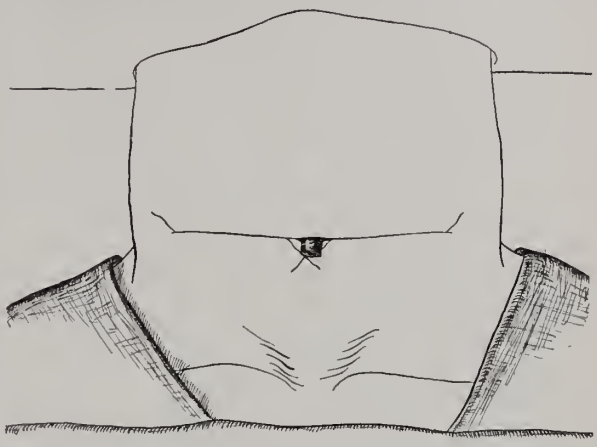


Fig. 7.—Drawing showing the sutured wound opening in center through which rubber tube drain passes. After the lobes of the gland have been resected and sutured, the transverse incisions in the sterno-hyoid muscles are sutured, and the fascia of those two muscles is sutured in the midline over the trachea. The inferior and superior flaps are united by suturing the platysma muscles together with a continuous catgut suture, and the skin with two subcuticular silk-worm sutures.

Summary

1. All patients having goiter should be under observation of the internist to determine the variety before treatment is instituted as all diseases of the thyroid are primarily medical.

2. Adenoma of the thyroid is best treated by surgical removal after adolescence, or during adolescence, if pressure symptoms develop.

3. A combined anaesthesia of nitrous oxide and oxygen with a local infiltration of the tissues with novocaine has proven to be the safest and most satisfactory method.

4. Efficient co-operation of the surgeon, anaesthetist, assistants, and nurses is most essential.

Stoneleigh Court.

OSTEOMA OF THE FRONTAL SINUS WITH REPORT OF A CASE.*

By F. H. LEE, M. D., Richmond, Va.

These rare, slow-growing tumors, at one time called "petrified brains," and to the old physicians a source of much mystery, are of historic interest. They not infrequently produced hideous deformity and death, and because of the unfavorable results of operative interference, provoked a dismal prognosis. The supposed futility of radical surgery is evi-

*Read before the Eye, Ear, Nose and Throat Society of Richmond, June 18, 1924.

denced by Berlin's advice to remove only the eye in cases of frontal sinus osteoma with rupture into the orbit. Sir John Bland-Sutton cites an interesting case in which a swelling the size of a pea was noticed at birth. At the age of nine it had destroyed the eye. At the age of twenty-five the skin of the brow sloughed; and eight years later the tumor fell out of the orbit. In 1881, Herman Knapp reported eleven cases of osteoma of the frontal sinus, of which his own was the first recorded in this country. In 1907, Gerber reported eighty-seven true cases of frontal sinus osteoma, and E. C. Sewall, in 1918, added cases from the literature with the report of his own, bringing the number to ninety-three. Since Sewall's report I have counted six cases in the literature, as follows: Reeve, one; Barnhill, one; Boardman, two; Thomas, one; and Reh, one. This brings the number of cases, including the one here reported. to 100. It is interesting to note here, that Culbert, in 1918, gave a rough total of 215 as representing the number of all cases of osteoma of the nasal accessory sinuses in the medical literature since 1748, and that the frontal sinus holds a large share of this number, nearly one-half. Kikuzi, analyzing fifty-four cases, found twenty-six frontal, eleven ethmoidal, eleven antral, five sphenoidal, and two nasal. On the other hand, Gerber gives the percentage of those arising in the ethmoid as twelve to eight to those arising in the frontal sinus. An idea of the infrequency of occurrence may be gotten from Andrew's report of eight cases of bony growths of the orbit out of nearly 430,000 cases of eye diseases. As to age, about fifty per cent occur during adolescence and eighty per cent occur under the age of fifty.

Histopathic origin: Various theories have been advanced as to the origin of osteoma. The question does not seem to be definitely settled. According to Ewing, histologic study fails as a rule to distinguish between simple hyperplastic growths and true osteomas; and that the gross and clinical features seem to offer the best criteria by which to separate them; also that limitation of growth is characteristic of the inflammatory type, but that true osteomas progress steadily until extirpated. Though the growth of an osteoma is usually over a period of ten years or more, before causing annoying symptoms, there may be comparatively rapid growth, as in the case reported by Thomas, in which one year after extirpation the tumor had grown to twice the size it was before operation. Osteomas may be composed of either the compact or cancellous type of bone. The former is the usual type seen in the frontal sinus and in consistence may be like ivory.

Etiology: Though the writers are not en-

Fig. 1—Drawing of the patient before operation; showing the tumor in the inner canthus of the right eye and the marked ocular displacement.

Fig. 2—Photograph taken 8 weeks after operation; showing that the eye has returned to practically its normal position. The pronounced details, from an unusually good focus of the camera, exaggerate the deformity of the brow and show an apparent ectropion of the lower lid which does not exist.

tirely in accord as to the etiology, most of them can find expression of their views in Culbert's summary, which in substance is: In osteomas of the nasal accessory sinuses there is in all probability a congenital defect which may or may not be stimulated to activity, the activating influnces being the unusual activity in the frontal region during adolescence, endogenous irritations, and external traumatism.

Symptoms: Primarily the symptoms must be classed as those due to pressure. Of the early symptoms, if there are any, headache is the most frequent. Later the symptoms will depend on the cavity encroached upon. Displacement of the globe, symptoms depending upon complicating infections, embarrassment of nasal respiration, and symptoms of intra-cranial pressure may be mentioned as likely to occur.

Diagnosis: Radiographic findings make the diagnosis self-evident. Where the tumor can be felt there is little difficulty experienced, and where there is beginning displacement of the globe or distention of the sinuses without a well founded cause, it should be suspected.

Fig. 3—Radiograph of the sinuses before operation, lateral view; showing invasion of the cranial cavity.

Prognosis: Gerber gave apt expression to the condition in saying that these tumors had the peculiarity of benignancy of histologic structure, but malignancy of effect upon surrounding structures. The following mortality statistics of Birch-Hirschfeld serve to give a good idea of what the surgeons formerly faced in encountering these cases.

Unoperated—Frontal 48.2; Ethmoid 80.0; Sphenoid 100.0;

Operated—Frontal 13.6; Ethmoid 12.7; Sphenoid 33.0.

Death was usually caused by meningitis or cerebral abscess, and even today these complications cause us most concern, so that a sinusitis complicating an osteoma would make the prognosis less favorable. Since the introduction of asepsis and the improvement of surgical technic, especially since Killian's work, the prognosis following operation is certainly favorable in the early cases, and much more so than formerly in the advanced ones. The difficulties of removal depend upon the size of the growth and the extent of its attachment.

Treatment: The treatment is early extirpation of the tumor. The technic is somewhat after the modified radical Killian operation with extension of the inner end of the skin incision upward if necessary. The compact tumors when connected by a pedicle or the attachment is not too extensive, may be removed by gradually prying and rocking the tumor free with suitable instruments. Care should be used to avoid opening the dura; and when the operation is at all extensive external drainage should be established.

References will be given to the literature reviewed, on which, this introduction is based. Sewall's and Culbert's reports are excellent and carry full bibliographies.

Fig. 4—Radiograph of the sinuses before operation, front view; showing the tumor nearly filling the large right frontal sinus and protruding into the orbit. A distinct tumor can be seen in the upper inner angle of the left frontal sinus.

Report of Case

J. H., male, age 17, colored, errand boy, was first seen May 22, 1924, on Dr. Karl Blackwell's clinic at the Medical College of Virginia. He complained of a swelling at the upper part of the inner angle of the right orbit. The patient said he had no other symptoms, and that he knew the swelling was there only when he looked in the mirror. It was first noticed one year ago. The growth increased in size and then he thought it decreased some. On April 1, 1924, he bumped his forehead against the end of a wagon, cutting the skin of the brow one and one-fourth inches, temporally. The wound was treated surgically and healed without trouble; but since then the tumor has grown rapidly. When questioned about diplopia and epiphora he said he had the former occasionally and the latter when reading. I noticed he closed one eye when reading.

The family history and his past history were negative.

Inspection revealed a slightly tender tumor, about the size of a small cherry, apparently pushing through the upper, inner, and under margin of the orbit. To touch it felt as if it were a smooth, round, bony growth bearing slight resilience. There was oedema of the surrounding tissue and the lid drooped. The globe was pushed forward, outward, and well downward. The head was tilted on the horizontal and vertical axes to the right. Examination of the globe was negative, excepting a slightly dilated pupil. The vision in the right eye was 20/30, in the left eye 20/20. In the light the pupil of the right eye measured 3 mm.; the left 2 mm. The pupils reacted directly and consensually, and to accommodation; but a little slowly in the right eye. The accommodation was 8.5 diopters in the right eye. The interpupillary distance was 70 m.m.; pupil O. S. was 32 mm. from the mid-line; pupil O. D. was 38 mm. from the mid-line, and 8 mm. below the horizontal plane. The ocular movements were good in all fields, probably O. D. lagging a little in the upper cardinal directions.

Screen test, O. D. turned up and in; O. S. turned down and in.

Binocular uncovering, O. D. squinted down and out; O. S. squinted up and out.

A plot of the diplopia mapped on the tangent curtain gave in all fields a rather marked vertical separation of the images with slight horizontal separation. There were slight changes in the various fields.

Fig. 5—Radiograph of the sinuses after operation, lateral view; showing the remaining shell. The partly flexed hand will serve to explain the prominent shadow in this view.

The field of vision was practically normal. The upper nasal quadrant was encroached upon, but this was due to the swelling protruding into it.

The right side of the nose was free from obstruction and secretion, and presented a healthy mucous membrane. The throat examination was negative. The sinuses did not transilluminate. All other examinations were negative, including the blood (Wassermann reaction), urine, physical, and neurological. The radiographs confirmed the clinical diagnosis of osteoma of the right frontal sinus.

On June 2nd the patient was operated on at the Memorial Hospital. The brow was shaved and strict asepsis observed. The mass in the orbit was easily extirpated and found to be thinly encapsulated. The sinus was opened and the tumor was immediately encountered. The mucous membrane was very thick. With the rongeur the tumor was easily exposed anteriorly and was removed with the rongeur and curette. The cranial cavity was entered at the upper medial part of the sinus, the dura being exposed about ten mm. square. At this point the tumor had eroded the sinus wall. It

was in contact with the dura, and was thinly encapsulated. The floor of the sinus was removed making an opening ten mm. square into the orbit. The bony brow was so encroached upon that it was removed for a distance of

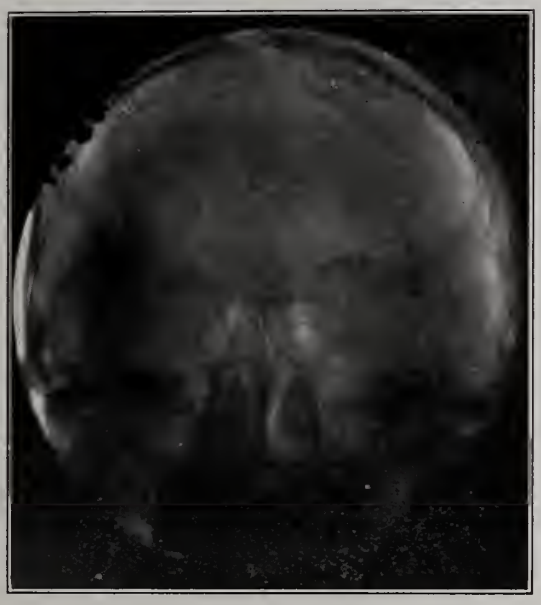


Fig. 6—Radiograph of the sinuses after operation, front view; showing small part of the tumor left in the upper median part of the right frontal sinus and the separate growth in the left frontal sinus. The anterior edge of the remaining shell can be seen, faintly, immediately to the right of the septum of the frontal sinuses.

two cm., precluding the possibility of retaining a cosmetic bridge. The tumor was curetted away to points beyond which I did not think would be reasonably safe; that is the posterior wall in the median line including the frontal crest, and the portion of the frontal just external to the cribiform plate. With this there was left the small but distinct tumor in the left frontal sinus. While removing the main mass, encapsulated lateral nodules were pried from their beds in the sinus wall leaving behind smooth pockets. The wound was closed with external drainage established. The growth was evidently of the cancellous type of bone.

The patient had an uneventful recovery from the operation. The wound healed well and all stitches were removed on the eighth day.

Dr. W. H. Cook, the pathologist, submitted the following report: "Tumor-like growth of fibroblasts which are producing large amount of collagen fibrils and frequently are being transformed into osteoblasts with formation of bony trabeculae. Mitotic figures are not observed. Pathological diagnosis; osteoma (inflammatory exostosis).

Dr. J. L. Tabb, the roentgenologist, took pictures on the 9th day and reported the following: "Majority of tumor removed. Small portion of tumor remains behind the upper portion of the right frontal sinus compartment, and apparently behind the upper portion of the left sinus close to the mid-line." If the right hand, semiflexed, is held up, it will give a good idea of the remaining shell, and how it cast the prominent shadow in the lateral view. The shadow cast in the left sinus is from a distinct tumor.

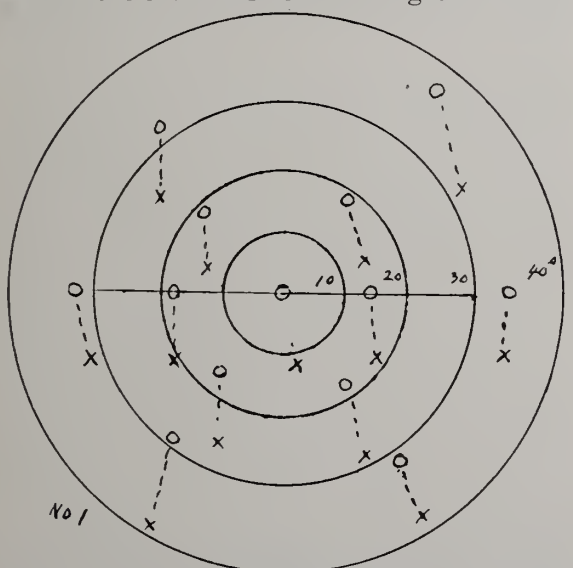


Fig. 7—Plot of fields of diplopia, before operation, at 75 cm., red glass over left eye; the right eye fixed; showing considerable separation of the images.

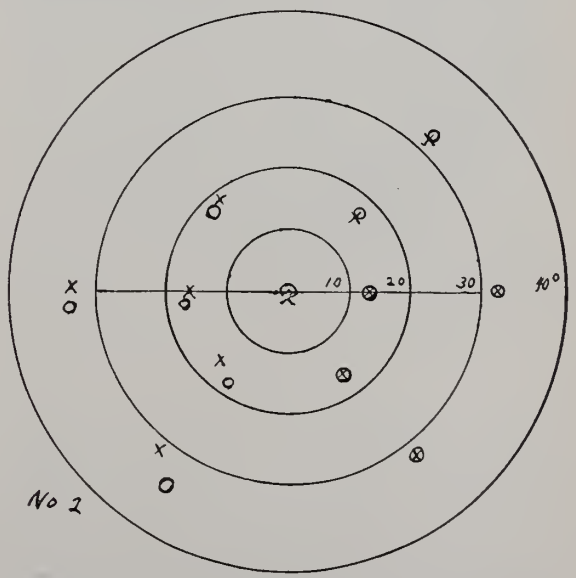


Fig. 8—Plot of fields of diplopia, 12 days after operation, at 75 cm.; red glass over left eye; right eye fixed in the fields on the right; showing the decrease in the separation of the images with fusion in two fields on the right.

On August 2nd there was some proptosis of the right eye. The visual acuity of the right eye was 20/30 corrected to 20/20 with a plus .075 cyl. ax. 75. There was binocular single vision in the right fields. In the left fields the patient had a vertical diplopia which increased in the field of action of the right superior oblique though there seemed to be no limitation of motion. There was no annoyance from the diplopia as the patient overcame it by slightly tilting his head to the left.

Conclusion.—The operation was undertaken with the hopes of extirpating the tumor; but in that it was the cancellous type of osteoma with an extensive posterior attachment and in that it abutted or attacked a most dangerous area, the region of the cribriform plate, it was considered safer to leave a shell rather than enter the cranial cavity in this region. Later, if the symptoms justified it, or there was further invasion of the cranial cavity, complete removal of the growth would be undertaken. The growth in the left sinus which seemed to be formed around the upper part of one of the septa was to be dealt with later.

Fig. 9—Photo-micrograph of section of the osteoma; showing average microscopic appearance under the high dry lens.

Conclusion

From the negative findings of a thorough examination of the patient, and from the physical features of the tumor, especially its being encapsulated, I regard the tumor as a true osteoma with an inflammatory phase superimposed upon it by traumatism which played no part etiologically but acted only to accelerate its growth.

REFERENCES

Beardman, W. W., and Donavan, M. M.: Osteoma of the Frontal Sinus, J. A. M. A. 71:1553, Nov. 9, '18.

Barnhill, J. F.: Report of a Case of Osteoma of the Frontal Sinus of Large Size; Operation; Recovery, Ann. Otol. Rhinol. & Laryngol, 27:1239, Dec. '18.

Culbert, W. L.: Multiple Osteoma of the Nasal Accessories Sinuses; Report of a Case Complicated by Syphilis; Operation; Autopsy, Ann. Otol. Rhinol. & Laryngol. 27:1203, Dec. '18.

Ewing, James: Neoplastic Diseases, Second Edition, 198-200, '18.

Knapp, Arnold: Two Cases of Osteoma of the Orbit Successfully Treated by Operation, Arch. Ophth. 35:353, July, '06.

Reh, H.: Osteoma of the Frontal Sinus, Duetsch Med. Wchnschr. 49:216, Feb. 16, 23. Ab. Internat. Surv. Ophth. & Oto-Laryngol. 166, April, '23.

Reeve, R. A.: Osteoma of the Frontal Sinus, Tr. Am. Acad. Ophth. & Oto-Larngol. 580, '17-'18.

Sattler, R.: A Case of Unilateral Proptosis. Exploratory Operation. Tentative Diagnosis of an Ethmoidal Osteoma, Arch. Ophth. 47:68, Jan., '18.

Sewall, E. C.: Osteoma of the Frontal Sinus, with a Report of the Case, Ann. Otol. Rhinol. & Laryngol. 27:275, March, '18.

Bland-Sutton, Sir J.: Tumors, Malignant and Non-Malignant, Seventh Edition, 53-67, '22.

Thomas, G. F.: Osteoma of the Frontal Sinus, Am. J. Roentgenol. 5:41, July, '18.

Wood, C. A.: Orbit; Osteoma, Am. Encyclo. Ophth. 12:9184 and 9198, '18.

114 *North Fifth Street.*

SOME PRACTICAL CONSIDERATIONS OF GOITER.*

By PHILIP S. SMITH, M. D., Abingdon, Va.

Of all the so-called ductless glands our knowledge of the thyroid has been most clearly and scientifically advanced. This has resulted from the fact that not only is the thyroid gland the most accessible, but also because clinical disturbances of that gland are more frequent and more easily recognized than other endocrine disorders. While admitting our ignorance of much of the physiology and pathology of these important organs of internal secretion, there are a few certain, outstanding facts that have been carefully sifted out of the mass of chaff of unproven theories. Workers in this field have been rewarded in producing such eminently satisfactory results as the effect of pituitrin on the uterine musculature, adrenalin in relieving bronchial spasm, and the more recent epoch-making agent of Banting and Best in the treatment of diabetes.

A knowledge of the fundamental physiological activity of the thyroid is essential to an understanding of its pathologic states. Briefly stated, it occupies the keystone position in the

*Read before the Wise County Medical Society at its meeting in Norton, Va., June 25th, 1924.

arch of the endocrine system in that it largely controls the all-important function of tissue waste and repair. The rate of practically all of the body's vital processes is in its custody, augmented and assisted by other inter-related glands of internal secretion. Heat generation is indirectly one outstanding feature of its activities. To Kendall and Plummer are we indebted for much of our knowledge of how the gland thus functions. The former demonstrated that the body's intake of iodine in its food and water was utilized by the gland in the formation of its active principle, thyroxin. Plummer later showed that the quantity of thyroxin in the body tissues determined the functional demands made upon the thyroid. DuBois and others still later made possible the determination in a practical way of the relative amount of thyroxin present in the body and the functional state of the thyroid by estimations of the individual's metabolic rate under basal conditions. This metabolism test, as originally conducted, was much too complicated and technical for general practical use. With simplification of apparatus and the employment of oxygen consumption as an index of the heat generated by the body, it has been made available, not only for institutional use, but also for the general practitioner As an aid in diagnosis of "borderline" cases, and as a guide to clinical improvement in thyroid disorders, the metabolism apparatus is now regarded equally as necessary as the thermometer in treating typhoid fever, or the sphygmomanometer in certain cardio-vascular-renal conditions.

Practically all of the commoner disturbances of the thyroid gland are associated with goiter, by which is meant relative enlargement of the organ. That the subject is an appropriate one needs no proof. During the recent war the draft board found that in Virginia seven out of 1,000 young men examined had "goiter." This figure, manifestly, is much smaller than the actual incidence of goiter in the State, since it is well known that in females thyroid enlargement is about four to five times as common as in males. Then, too, in other sections of the State goiter is much less often seen than in Southwest Viriginia. A visiting physician from Richmond, attending a county fair in Abingdon, was so impressed with this fact that he occupied himself counting the goitrous fair-goers as they passed before him.

The thyroid gland, like other secretory organs, is made up of two main types of tissue, viz., the "working" portion (parenchyma), composed of cuboidal epithelial cells, and the supporting or interstitial connective tissue, in which ramify a bountiful net-work of blood-vessels and nerves. It is chiefly in the specialized epithelial cells forming the glands, or acini, that the striking changes occur in disorders of the thyroid.

The usual classification of thyroid disorders is based upon the tissue changes or microscopic pathology. One cannot wholly disregard such a pathological consideration in discussing goiter, but emphasis will be placed upon another, and probably more practical, phase of the subject which it is hoped will be of interest to you.

In this paper the following clinical types of thyroid disorders will be considered, the classification being made on the basis of the gland's function rather than the tissue changes:

1. "Endemic" goiter
   a. Non-toxic adenomata
   b. Colloid goiter
2. Sub-thyroid states
   a. Cretinism.
   b. Myxedema
3. "Hyperthyroid" states
   a. Toxic adenomata
   b. Exophthalmic goiter

Acute thyroiditis and malignant tumors of the gland will not be discussed.

"Endemic" Goiter

You are familiar with the recent work done by Marine, Kimball and others in demonstrating the deficient iodine content of the food and water in the states of the Great Lakes district as the outstanding factor in the etiology of "endemic" goiter so prevalent in that region. These goiters are either the adenomatous or colloid type. In neither are there symptoms of hyperthyroidism. Both occur during the period of adolescence, particularly between seven and fourteen years; and, as would be expected, it is considerably more common in girls, than in boys. In some areas 60 to 75 per cent of the children of grammar school age have goiter. Its incidence is in inverse ratio to the iodine content of the water available for drinking purposes. These children, when divided into two large groups, one of which is given sodium iodide, and the controls not similarly treated, show that not only is adoles-

cent goiter largely preventable, but that the thyroid enlargement that has already occurred can generally be overcome. The method and dosage of administering the iodine have not yet been determined in an altogether satisfactory manner. The normal thyroid gland contains 2 mg. of iodine per gram of the dried substance; the maximum total store of iodine is 25 mg. When the iodine content falls below 25 mg. the demand made upon the gland for thyroxin by the body tissues is greater than can be supplied, with the result that thyroid enlargement occurs in the effort to supply the deficiency. Some have advocated saturation of the thyroid glands of these children by giving iodides four grains three times daily for two weeks, twice yearly. This plan seems unwise, as it has been shown that simple adenomata may be rendered toxic by excessive intake of iodine. Other workers have found that much smaller doses given once a week throughout the year are safer and equally as efficient in preventing and reducing adolescent goiter. The health authorities of Buffalo, N. Y. have tried iodization of the city drinking water, but the numerous disadvantages of this plan are apparent. Much of the same criticism can be directed against the plan of mixing sodium iodide indiscriminately in the population's table salt.

Our own State Board of Health is manifesting interest in this prophylactic work. While I have no data showing the incidence of adolescent goiter in this section of the State, I am convinced that the number of cases is sufficiently large to justify its employment provided that the co-operation of the local profession can be secured in carefully observing the children under treatment. Plummer, in emphasizing the danger of indiscriminate, uncontrolled use of the drug for this purpose, states that nearly fifty per cent of the rare cases of hyperthyroidism associated with adenoma of the thyroid that have come under his observation before the twentieth year of life have followed the administration of iodine. Toxic adenoma, however, is not frequently seen in indivduals under twenty years of age.

Non-toxic adenomatous and colloid goiters in adults usually have their origin in the goitrous changes occurring during the earlier life of the patient. The enlargement increases during periods of stress and strain in the individual's life. Menstruation, pregnancy, the menopause and prolonged anxiety or worry exaggerate the tumor. Most of them require no active treatment; if associated with symptoms of thyroid deficiency, thyroxin or thyroid extract is indicated. Some of them because of their size or prominence cause pressure symptoms or such disfigurement of the patient as to make surgical intervention necessary. Moreover, it is a well known fact that many simple adenomatous goiters after the patient's thirtieth year become toxic and thus require removal.

Sub-Thyroid States

Another class of thyroid disorders not so frequently seen are the individuals with cretinism and myxedema. Cretinism originates in foetal or infantile life and is usually not discovered until at the end of the patient's first year when the infant is found to be physically and mentally backward. It is due to a lack or absence of thyroxin in the tissues, and, unless supplied, the characteristic failure of the child to grow in stature, the tendency to bloated face, flattened nose, drooping jaw, thick, dry, protruding tongue; dry, scaly skin, thin hair, dental defects, "pot belly," pads of fat, muscular weakness and mental retardation, advertise unmistakably the nature of the disease. Cretins are more common in regions where "endemic" goiter prevails, and it has been shown that if thyroid extract or thyroxin is administered to the mothers during pregnancy its incidence can be materially lowered. Just as we have learned that rickets, scurvy, beri-beri, etc., are deficiency diseases requiring adequate intake of the lacking vitamine, so treatment of thyroxin-deficient cretins naturally calls for vigorous and persistent administration of thyroxin or thyroid extract. The results, if therapy is started early, are usually striking; if neglected, the subjects become useless drones upon society.

Myxedema is a disease of adult life also characterized by a lack or absence of thyroxin. It is seen chiefly in females between thirty and sixty years of age usually showing no thyroid enlargement. It is not endemic and its etiology is probably not known, though a small percentage of cases results from previous acute thyroiditis. The outstanding characteristics of the disease are quite similar to those of cretinism. The thyroid gland is atrophied and the basal metabolism is decreased. The onset of the disease is slow, the patient's usual complaint being lassitude and increase of weight

in spite of a failing appetite. In the advanced types the skin is dry and rough particularly over the hands, arms and legs: the nails are brittle, the body temperature is subnormal, sweating is often absent, the hair and eyelashes are dry and fall out, and the patient complains of being cold. The facial features are broad and mask-like with thick lips and nostrils: fat-like, non-pitting infiltration of the subcutaneous tissues is general but more abundant about the arms, buttocks and supraclavicular fossae. The special senses are dulled, mental processes are slow, and the patient appears calm and placid. Fatigue and drowsiness complete the picture suggesting a hibernating animal.

Many cases of myxedema pass unrecognized by the physician and are likely to be regarded either as nephritis or pernicious anemia. The lowered basal metabolism and the absence of the blood and urinary changes seen in pernicious anemia and nephritis will remove any doubt as to the nature of the disease. Thyroxin or thyroid extract have a specific effect in the treatment of myxedema. No rule for dosage can be suggested, as the degree of thyroid deficiency will determine the amount required. Furthermore, it is a well known fact that different preparations of thyroid extract vary considerably in their potency. Ordinarily 2 mg. of thyroxin is equivalent to three and one-half to four grains of thyroid extract. The effort should be made to bring the patient's metabolic rate to within the normal limits when marked clinical improvement will result. Treatment must be continued indefinitely or relapses may be expected.

"Hyperthyroid" States

There is another important group of goiters associated with what is generally regarded as hyperthyroidism. I refer to toxic adenoma and exophthalmic goiter. Here the clinical picture is in marked contrast to cretinism and myxedema. It would be most interesting and instructive if, by chance, a woman with pronounced myxedematous changes should be placed in a hospital double-room with one showing the clinical syndrome of advanced hyperthyroidism.

In our series of 350 metabolism tests made on 225 patients, nine per cent of them indicated subthyroidism: fifty-eight per cent gave normal readings which were valuable in excluding impressions suggestive of hyperthyroid states. Neurasthenia, the so-called "effort syndrome," and other functional conditions associated with nervousness, tachycardia, etc., compose most of this group. The remainder, thirty-three per cent, showed varying degrees of elevated metabolic rates, most of which were regarded as cases of toxic adenomata. Certainly, in Southwest Virginia exophthalmic goiter is much less common than toxic adenoma. Parenthetically, it should not be necessary to state in this connection that diagnosis of such thyroid disturbances should never be "machine made;" the metabolism apparatus, like other laboratory aids, merely confirms or disproves one's clinical impressions.

Because of the different prognosis and treatment it is important, when possible, to distinguish between adenoma with hyperthyroidism and exophthalmic goiter. In both there is thyroid enlargement; in toxic adenoma the gland shows one or more prominent, palpable nodules, while in exophthalmic goiter the gland is symmetrically enlarged and firm from the diffuse hypertrophy and hyperplasia. Adenoma with hyperthyroidism is comparatively rare before the thirtieth year of life, the average age when the patient seeks medical help being around forty-eight, with seventy-eight per cent over forty years old. In exophthalmic goiter the average age is thirty-seven, with sixty-one per cent under forty years of age. The former group (toxic adenomata) usually give histories of simple adenomatous goiter for many years (average duration eighteen years), with insidious onset of systemic symptoms for one to three years. The development of symptoms in exophthalmic goiter, including the tumor, is generally quite sudden and is frequently associated in the patient's mind with some unusual stress or emotion occurring three to twenty-four months previously.

The etiology of toxic adenoma in some cases can be traced to rather large doses of iodine taken by the patient to remove a simple adenomatous gland; in others the causative factor is not definitely known, but is probably the result of failure of the thyroid gland to be controlled in its function by the actual need and demand of the body tissues for thyroxin. In consequence of this loss of balance between demand and supply there is an excessive outpouring of thyroxin. In exophthalmic goiter the etiology is not known; some cases seem to have their origin in focal infections.

The symptomatology and physical signs in the two conditions are strikingly similar with

some important exceptions. In both there is evidence of intoxication. The basal metabolism is elevated but in the average case is apt to be higher in exophthalmic goiter. The patients complain that they have the will to do, but the strength to "carry on" is lacking. Loss of weight, in spite of increased appetite, sweating, nervousness, rapid, palpitating heart action, insomnia and weakness are the outstanding features in the history. Physical signs common to both are evidences of emotionalism, restlessness, purposeless movements of the extremities, fine tremor of the extended fingers and tongue; warm, moist skin surface with flushing of the face; rapid pulse accentuated by excitement; forcible, thrusting heart contractions frequently accompanied by systolic blows when hypertrophy or dilatation of the myocardium has occurred.

Reviewing the distinctive features of the two diseases helpful in making a differential diagnosis, we note the following: age incidence, manner and time in which systemic symptoms appear, the difference in etiological factors, together with the gross appearance of the gland in the two conditions. Bilateral prominence of the eyes and pronounced gastro-intestinal symptoms, such as nausea, vomiting, diarrhoea, and at times jaundice, occur in exophthalmic goiter but are absent in toxic adenoma. In exophthalmic goiter there is a fairly constant thrill and bruit demonstrable over the gland even before the bulging eyes appear. A further interesting characteristic of the disease is that its progress is marked by waves of three months' duration followed by periods of improvement.

Recognition of the type of thyroid intoxication largely determines the plan of treatment indicated. Patients with toxic adenoma may be so acute when first seen that preliminary rest, digitalization to combat cardiac decompensation, forced feeding to preserve the body weight, etc., are necessary. As soon as their clinical improvement and falling metabolic rate suggest the advisability of surgical intervention, the adenomatous portion of the gland should be excised. Most of these cases do not require preliminary ligation of the superior thyroid vessels. Some of the less toxic ones respond to rest and X-ray or radium treatment of the gland, but the disease can be controlled more quickly and satisfactorily by partial thyroidectomy. These patients generally show a remarkable clinical improvement and basal metabolism rates approximating normal within three weeks after operation.

While not denying that heretofore surgery has accomplished more for certain patients with exophthalmic goiter than any other plan of treatment, many surgeons have expressed the feeling that the results were not all that could be desired in view of the frequent recurrence of symptoms or the failure to do more than afford partial relief to the distressed patients.

Recently E. H. Mason, of Montreal, has published a preliminary report of his studies of exophthalmic goiter. He, like many others, regards the disease as not a true hyperthyroid state, but rather a dysthyroidism. The intoxication results, he thinks, not from an excess of thyroxin in the body tissues, as is the case in toxic adenoma, but to "an abnormally formed chemical complex,—possibly an imperfectly iodized thyroxin molecule." Therefore, "the introduction of iodine into the system tends to enable the thyroid gland to manufacture the thyroxin complex in a normal manner, stopping, or at least decreasing, the secretion of an abnormal product."

Acting on this assumption, he has given Lugol's solution (iodine five per cent, potassium iodide ten per cent) in doses of minims v to xv daily to patients with exophthalmic goiter with the most remarkable results. Within one to two weeks after its administration striking clinical improvement in the patient's condition with an equally prompt reduction of the metabolic rate are noted. His case records reported in *The Canadian Medical Association Journal* might make one doubt the evidence were not the author's reputation and integrity above criticism.

While implying that the agent has not been employed in a sufficiently large number of cases to justify the prediction that the results will be uniformly as good, he shows that even as a preliminary preparation for thyroidectomy administration of Lugol's solution makes vessel ligation unnecessary in the acute cases. Furthermore, symptoms recurring following previous subtotal thyroidectomy respond to the drug equally as well as those primarily treated. Whereas in patients with toxic adenoma there is every reason to believe that Lugol's solution would have the effect of throwing kerosene on a fire to quench it, in exophthalmic goiter the devastating flame of intoxication is apparently controlled by its use. If

further and more general experience verifies Mason's present results, this contribution to therapeutics will rank as a boon to mankind along with such specifics as antitoxin in diphtheria, quinine in malaria, arsphenamine in syphilis, and insulin in the treatment of diabetes.

Summary

An effort has been made in this paper to show that:

1. The function of the normal and abnormal thyroid gland is intimately related to the available iodine.

2. Basal metabolism estimations are helpful in the diagnosis, and indispensable in the treatment of most thyroid disorders.

3. "Endemic" adolescent goiter is an iodine deficiency disease and is preventable.

4. Cretinism and myxedema can be controlled by adequate doses of thyroxin or thyroid extract.

5. Toxic adenoma and exophthalmic goiter are distinct disease entities.

6. Sub-total thyroidectomy is the most satisfactory treatment of toxic adenoma.

7. The administration of Lugol's solution promises to be a distinct advance in treating exophthalmic goiter.

Geo. Ben Johnston Memorial Hospital.

X-RAY EXAMINATION OF THE APPENDIX: ITS DIAGNOSTIC VALUE.*

By DANIEL D. TALLEY, Jr., M. D., Richmond, Va.

It is generally conceded that many appendectomies are performed without securing desired results, and it is likewise true that a diseased appendix may produce a train of symptoms which do not definitely reveal its presence. Therefore it is not unjustifiable to feel that any diagnostic method which may give definite aid in the investigation of appendiceal pathology is valuable enough to be employed in at least a certain number of the suspected cases. The acute appendix being as a rule out of the domain of the roentgenologist, this discussion will be limited to a consideration of the chronic and subacute cases.

At the outset it is the writer's desire to stress two points. First, there is no intention to belittle the importance and value of the usually employed methods of clinical diagnosis, including history, etc., nor to make this special method a short cut and thereby to eliminate the necessity of a thorough general examination. Secondly, it should be emphasized that the roentgen examination of the appendix is only a part of the routine X-ray examination of the gastro-intestinal tract, the whole tract being examined in every case unless for some special reason.

For the benefit of those not skilled in the practice of roentgenology, it may be said that the barium meal enters the appendix in the majority of cases, causing the lumen to be partially or completely visualized in proportion to the completeness of the filling. The cecum and terminal portion of the ileum should likewise be visualized at the proper period of time after the administration of the meal. On palpation the normal cecum and appendix exhibit a considerable amount of mobility under the fluoroscope in most cases, which greatly aids us in the study of these parts. The barium meal is believed to give far more information as to the appendix than the barium enema.

According to most observers the various points of interest to be sought for in the examination of the appendix are: (1) Presence of tenderness over the appendix shadow, (2) Variations in shape of the barium filled appendix, (3) Abnormal position, (4) Fixation, (5) Retention of barium within the appendiceal lumen for an abnormally long time, (6) Presence of enteroliths within the lumen, (7) Abnormal position or adhesions of terminal ileum or cecum, (8) Incompetent ileocecal valve, (9) Ileal stasis, (10) Abnormalities of gastric function.

Several of these points may be dismissed with a word or two, but there are at least two of them which warrant discussion in detail.

Practically every article on this subject mentions tenderness over the appendiceal shadow as being of value in establishing a diagnosis of appendiceal pathology, but it is the writer's opinion that as a rule not enough relative importance has been given this finding and not enough has been said concerning the eliciting of this tenderness.

Just here a few words may be said concerning the ordinary palpation of the abdomen as compared with palpation under fluoroscopic control. The value of this latter presupposes ordinary palpatory skill on the part of the roentgenologist. In the ordinary clinical palpation, tenderness over McBurney's point is considered as valuable evidence in favor of appendiceal inflammation, but it is dangerous to take

*Read before the Society for Surgical Research at Richmond, Virginia, April, 1924.

it for granted that the appendix is beneath this point, for it may lie anywhere from the under surface of the liver to the depths of the pelvis, and the lateral variation of its position may likewise be considerable, even excluding the likelihood of a visceral transposition. Under the fluoroscopic screen we have a threefold advantage: (1) the position of the tip of the cecum or the barium filled appendix itself may be located, (2) by manipulation or change of posture of the patient the cecum may be moved to a point where it is most accessible to palpation, (3) the fact that we are really looking at the object of our interest enables us to concentrate our energies rather than to grope blindly, and localized tenderness may often be discovered which might ordinarily be overlooked.

In regard to the localization of the position of the appendix with the ordinary barium and buttermilk meal, some filling of the lumen of the organ will take place in most cases either six hours or twenty-four hours after the administration of this opaque meal, at both of which times observations are made as a routine. In those cases where the lumen is not filled, it is a reasonable deduction that the position of the organ is in all probability just to the inner side of the tip of the cecum, provided the latter be itself free from evidence of pathology which fixes or distorts it. As previously stated, however, the position of the cecum is by no means constant in all individuals. A very definite proportion of all patients examined (particularly females with a visceroptotic tendency) show a pelvic cecum which cannot be satisfactorily palpated under the screen. In our experience the only satisfactory way to elevate the cecum in the majority of such cases is to make the patient assume the knee chest position for a few minutes. The patient is then instructed to straighten out prone and as quickly as possible to turn to the back, during which time the head of the table is gradually lowered so that we have attained the Trendelenburg position. The cecum, if not adherent, will now be found to have moved upward towards the pelvic brim and may usually be carried still further upward without difficulty by the palpating fingers. This manoeuver has been of vast help in many cases, for when the appendix lies in the pelvis, it is apt to be obscured by shadows of other portions of the intestine, it is not as accessible to palpation as when out of the pelvis and the terminal ileum may not be satisfactorily studied. Tenderness, if present, may be far better brought out when the organ has for a background the rigid ileo-psoas muscle and iliac bone, than when it lies deep in the basin of the pelvis surrounded by soft structures.

The study of the pelvic appendix has been taken up in some detail because this is not an unusual position for the cecum to assume. When the location is postcecal the cecum may often be pushed aside by the palpating fingers and the organ thus made accessible. In the type of individual opposite to the visceroptotic (so-called sthenic type), the appendix may lie well above the crest of the ilium far above McBurney's point, and where the organ is displaced in other directions by adhesions or by reason of anatomical variations, the value of roentgenological localization is obvious.

Whereas in the acute cases of appendiceal inflammation the tenderness may be generalized over the right iliac region, fluoroscopic studies have justified the decided opinion that in most of the chronic cases this tenderness is localized over a small area corresponding to the position of the appendix, or, if not strictly localized, that a point of maximum tenderness will be found over its location. A very striking demonstration which has been carried out many times is actually to move the cecum and appendix to another area, when we will find that the tenderness shifts to the new area leaving the old position free from pain on pressure. This manoeuver of course cannot be carried out if the structures in question are fixed by adhesions. Upon the degree of tenderness, and its tendency to correspond with the position of the appendix, depends the positive value of our conclusions. Complete muscular relaxation is of course desirable for accuracy of observation and patients with moderately thin abdominal walls naturally offer less difficulties than very stout ones.

Fixation of the appendix by adhesions may be easily demonstrated in many cases, though thorough palpation is advisable to make sure that true fixation is present. Abnormal position or distortion of both cecum and appendix are of considerable assistance here. Where adhesions are found and no localized tenderness is present (especially if the position is such that palpatory pressure can be made satisfactorily) the appendix is reported as pathological without attempt at diagnosis of active disease. The question of active inflammation

in such cases is believed to be beyond the scope of the roentgenologist.

The presence of constrictions, kinks, irregular lumen, etc. may be of some value, but should be most carefully studied for permanence, as such phenomena may not be due to disease.

The presence of barium in the terminal ileum for an abnormally long period of time (ileal stasis) suggests pathology in the ileocecal region and may be contributory evidence towards the detection of appendiceal pathology.

Adhesions which distort the cecum have been referred to above. The terminal ileum may likewise be involved in the process and its variation from the normal position demonstrated.

Retention of barium in the lumen of the appendix for a considerable time after the cecum has emptied itself is supposed to indicate poor drainage and therefore an appendix which is a potential source of trouble. We have never made any special study of this phenomenon, but do not believe that a diagnosis of appendiceal disease should be made on its presence alone, without further evidence.

Incompetence of the ileocecal valve is likewise thought by some observers to indicate or suggest pathology in the appendix. The writer is frank to say that he has never attached any importance to this phenomenon as being an aid to making such a diagnosis.

The presence of an irritative lesion in the appendix may cause pylorospasm which is manifested roentgenologically by abnormal gastric peristalsis and delayed gastric motility. It may be interesting to note that the work of Alvarez and others tends to prove that this is not a reflex pylorospasm, but due to muscular contraction waves travelling directly upward throughout the length of the small intestine from the cecum to the pylorus. The value of such gastric manifestations toward making a diagnosis of appendiceal inflammation is only contributory, as the same abnormalities may occur from lesions elsewhere in the tract. Where the findings elsewhere are negative and the appendix is suspicious some importance may be attached to the unusual gastric behavior.

Something has been said concerning the tendency on the part of the enthusiastic roentgenologist to make too many positive diagnoses of chronic appendicitis. In order to investigate at least our own tendency in this respect, we have reviewed our last 1,000 gastro-intestinal X-ray examinations (the cases in which the appendix had been removed being omitted), and have found that in this series appendiceal pathology was diagnosed 294 times. This signifies a diagnosis of appendiceal disease in twenty-nine and one-half per cent of cases exhibiting gastro-intestinal symptoms. We have the impression that this percentage may be somewhat higher than has been recognized as usually constituting the incidence of such pathology, but it is certainly not believed in itself high enough to warrant any particular suspicion that we are basing our diagnoses on unsound evidence.

Finally it is desired to speak briefly as to the possibility of making a negative diagnosis of appendiceal disease by means of X-ray examination. In attempting to do so it is believed that we are treading on dangerous ground and that in perhaps the greater number of cases with negative X-ray findings the roentgenologist will have performed his full duty when he states that no X-ray evidence of disease is present. In some cases, however, perhaps we may say many cases, the lumen of the organ is filled so perfectly and the position in the right iliac fossa admits of such satisfactory palpation and manipulation that it is difficult to conceive how real disease could be present without giving roentgen evidence. If, in addition, a gastric or duodenal ulcer or a gall stone has been discovered to account for the symptoms, a negative diagnosis is further strengthened.

Conclusions:

(1) Granting ordinary palpatory skill on the part of the roentgenologist, palpation under fluoroscopic control possesses advantages over palpation without such control.

(2) Demonstration of a point of definite, persistent, localized tenderness which has its maximum intensity directly over the position of the appendix as determined fluoroscopically, indicates the presence of appendiceal inflammation.

(3) Evidence of adhesions affecting the appendix indicates pathology.

(4) Other signs are less valuable.

(5) Pathology cannot be positively excluded by X-ray examination, but in certain cases negative findings are of distinct value.

104 *Professional Building.*

ETIOLOGY, DIAGNOSIS AND MEDICAL TREATMENT OF PYOGENIC INFECTIONS OF THE KIDNEY.

By F. J. WRIGHT, M. D., Petersburg, Va.

For the sake of brevity I will not discuss all of the pyogenic infections of the kidney: only taking up those commonly met in a general practice.

Pyelitis and Pyelonephritis

To separate these two would be a distinction rather than a difference because you can hardly have an infection of the kidney pelvis without the kidney substance being more or less involved.

The predisposing causes of pyelitis are: Female infants, pregnancy, stones either in the kidney or ureter, ureteral stricture or any growth causing pressure on the ureter, thus obstructing it, nephroptosis acting by interfering with drainage, gonorrhoeal infections—more common in females, focal infections, general pus infections, typhoid fever, septicaemia, and the acute exanthematous diseases.

Exciting Causes—The most common organism causing pyelitis is the colon bacillus. The staphylococcus, albus and aureus, and streptococcus are frequently the cause, as is occasionally the bacillus pyocyaneus.

Symptoms—There may be an acute, subacute or chronic pyelitis, the symptoms varying according to the degree of infection and the organisms responsible therefor. A typical acute pyelitis is usually ushered in with a chill, or chills, remittent or intermittent. The temperature rises and with it come a general malaise, aching of the head, back and the muscles; frequently nausea and vomiting,—in fact, the general symptoms of any infection. The urinary symptoms usually, but not always present, are: frequency, some pain and urgency, especially at the end of micturition. At times there is pain referable to the kidney and right rectus rigidity, simulating appendicitis. While pyelitis is probably more frequently bilateral, yet it is a well known fact that it is often unilateral. On urinalysis examination the urine is acid and shows numerous pus cells, and frequently red cells, and, according to extent of involvement of the kidney substance, no casts, or numerous hyaline, fine and coarse granular and pus casts. A blood count shows, 15,000 to 20,000 whites, and I have seen one case showing 35,000.

Diagnosis—This is not always as easy as the text books indicate. An acute case may simulate malaria, pneumonia, appendicitis (if right kidney only is involved), nephrolithiasis with pus infection, pyonephrosis and perirenal abscess.

Malaria may be ruled out by an examination of the blood, even if no malarial organisms are present, as in malaria you have a leucopoenia and the urine should not show pus.

Pneumonia can be ruled out by a careful and sometimes repeated examination of the chest. Almost always there is a higher white count and no pus in the urine, or a small amount, if any.

The differentiation from appendicitis is not always so easy in those cases showing right rectus rigidity, vomiting and considerable pain. The temperature is usually higher in pyelitis. The urine should not show pus in appendicitis. The blood picture is very similar and in some cases abdominal rigidity is as great in one as the other. I recall one rather severe case of pyelitis with high fever three or four days when he began to have severe abdominal pains and marked rigidity. I made a diagnosis of appendicitis and asked that my friend, Dr. J. B. Jones, see him. He operated at once and found a very acute appendix, almost gangrenous. In this case, the pyelitis did not clear up for four weeks after operation. An X-ray has often cleared up doubtful cases.

Nephrolithiasis with infection can only be ruled out by X-ray or ureteral catheterization, or both.

Typhoid fever can be recognized by leucopoenia, observation, early blood culture and positive Widals (aften ten days).

Do not make a diagnosis of pyelitis by finding pus in the urine *unless* you have excluded venereal diseases, or unless the urine is drawn by catheter, in the female. I know nothing harder to recognize in the female infant, unless it be otitis media (unless you look at eardrum), until you can get a specimen of urine.

Medical Treatment—Rest in bed with a light, nourishing diet and an abundance of light, pure water is imperative. In my experience, alkalies in large enough doses to alkalinize the urine have given uniformly the best results. If this does not relieve, I switch to hexamethylenamine, 45 to 60 grs. daily, given in large amounts of water, adding to this sodii acid phosphate grs. x, to each dose of hexamethylenamine in order rapidly to acidify the urine.

I have seen it stated that the colon bacillus cannot live in an alkaline urine. To the truth of this I cannot testify, though I do know some cases will not yield to any medical treatment when the urine is acid. In some cases success will be had by repeating first the alkalies and then the acid phosphate and hexamethylenamine, again and again.

A culture made of the urine and a vaccine made of the infecting organism and given every three to five days will sometimes clear up an obstinate case. If the cocci group of organisms prove to be the cause, I would advocate gentian violet, one per cent solution, not using over 5 mg. to each kilogram of body weight: in colon bacillus infection, mercurochrome one per cent, intravenously, 5 mg. to each kilogram of body weight. The mercurochrome will at times, produce a right severe reaction. Both the gentian violet and mercurochrome should be given intravenously.

When there is a stricture of ureter, or stone, of course, you have to resort to surgical measures which will be covered by the writer of the paper on surgical treatment.

Pyonephrosis

This is always secondary to some obstruction of the ureter, plus infection. The obstruction may be a stone, a stricture, malignancy somewhere along the ureter, and it may begin as a hydronephrosis, or follow a pyelonephritis.

Symptoms—Pain in the lumbo-inguinal region, evidence of bladder irritation, such as frequent painful micturition, are present. The urine will show pus if the obstruction is not complete. In the kidney region there can be felt, especially in a thin subject, a fluctuating tumor, dullness on percussion. X-ray shows the presence of a tumor in the kidney region which may not resemble a normal kidney in outline if distention be great. The general symptoms are those of a pyelonephritis, chills, sweats, rapid pulse and high, irregular temperature, but as a rule greater pain.

Diagnosis—Pyelonephritis usually shows a greater size of the kidney, maybe the presence of little or no pus in the urine, more pain, more severe general symptoms and history of longer duration of symptoms.

In nephrolithiasis without entire obstruction, we have normal or slightly enlarged kidney as evidenced by palpation, percussion or X-ray. There is little or no fever, unless infected. Blood and pus may be found in either, but there is apt to be more blood in kidney colic.

Differentiating from tumors of the kidney, we find that cystic tumors do not appear suddenly, and there are no early general constitutional symptoms. Papilloma shows no early increase in size of kidney and no acute general symptoms. An enlarged cystic gall-bladder might confuse. Gall-bladder empyema gives practically the same general symptoms but presents no urinary findings, except those encountered accompanying any general infection. There is usually marked rigidity of the hypochondrium as well as tenderness about the end of the tenth rib, with percussion, dulness decreasing as the loins are approached; while in pyonephrosis there is dullness from the flank forward, sometimes to the middle line. In empyema of gall-bladder there is usually a history of indigestion of several years' standing.

Medical Treatment—There is no curative medical treatment. Anodynes, such as morphine or the milder opiates, are indicated, with, of course, supportive treatment.

Nephrolithiasis

In the opinion of good men, you have to have the presence of some organisms plus imperfect drainage of the kidney before you can have stone formation; therefore, in the etiology of kidney stone, I think it imperative that you look for infection somewhere in the body; the tonsils, teeth, genito-urinary tract (prostate, stricture of ureter or urethra), gall-bladder, bronchi, or gastro-intestinal tract. A few blood cells or bacteria may form the nucleus of a stone.

Diagnosis—The diagnosis of kidney stones with a typical colic is usually easy—severe pains in the back on one side radiating down towards the bladder, aching of the testes with retraction of the scrotum in the male, sometimes burning and frequent urination, blood cells in the urine microscopically and often macroscopically. On the other hand, there may be the so-called "silent stones," in which there may be few symptoms, little urinary evidences of stone, little or no aching in the lumbar region. Here the X-ray will reveal the true condition.

The *Medical Treatment* in the presence of colic is morphine sulphate gr. ¼—½, repeated, if needed. The pain is sometimes so great that ether or chloroform has to be given

until morphine has time to act. Hot applications help; have a patient get in a tub of water as hot as can be borne. After the attack advise drinking an abundance of water. Alkaline diuretics seem to do good. Of course, if the stone is found to be large, there can be only symptomatic medical treatment. On the other hand, the smaller stones are frequently passed. The so-called "silent stone" is not benefited by medicines other than urinary antiseptics.

Perinephritic Abscess

This condition may be due to an extension of pyelonephritis, general pus infections, or local foci of infections. It has been shown to be due to bacterial infections beginning in the medulla of the kidney, finally breaking through the capsule into the perirenal tissues. Traumatism may be a factor.

Symptoms—The symptoms vary with the causative factors. There is always more or less fever, a leucocytosis, general malaise, and loss of appetite. Locally, there is tenderness, and if extensive oedema, a sense of aching in the lumbar region. There may or may not be pus and blood in the urine, depending whether or not there is communication with the abscess cavity and the pelvis of the kidney.

I recall one case which, while not strictly a perinephritic abscess, I believe was due to a bacterial infection, which in time would have become perinephritic. The history is briefly this: A married woman, white, with a negative family history and negative examination, other than mentioned below, came to me after a fall, four or five days before, not knowing at the time, or even afterwards, that she had hurt herself. Soon after the fall, she had pain in the left lumbar region, which did not radiate into the groin. There were no vesical symptoms. A leucocytosis of 18,000, a temperature 99°-101°, and the well known general symptoms of a mild infection, with tenderness over the left kidney, were found. X-ray examination and cystoscopic examination did not help us. I made a diagnosis of a probable abscess beneath the capsule, in which Dr. Henry Turner concurred. On operation by Dr. Turner, we found a small abscess just beneath the capsule, containing about one ounce of pus. This was incised and drained. In about three weeks she was discharged as cured. I mention this case because of the negative urine all the way through, the negative cystoscopic findings, with a normal pelvis and a negative X-ray.

Medical Treatment—Symptomatic treatment for relief of pain, and supportive treatment with good, light, nourishing food is advised. The curative treatment is always surgical.

49 *South Market Street.*

FOCAL INFECTIONS IN THE TONSILS AND ADENOIDS.*

By MEADE EDMUNDS, M. D., Petersburg, Va.

The importance of the focal infection theory is now generally recognized by the medical profession. All of us know that if infectious foci can be detected and removed, before permanent damage has been done, as the result of the distribution through the body by way of the lymph and blood channels or by direct swallowing of bacteria and toxins, much can be done towards the prevention of pathology in organs and tissues remote from the orginal focus of infection.

Of all the diseases of the human body due to focal infection, the focus may be found in eighty per cent of cases above the collar bone, because from their exposed position, the mouth, its contained structures and the cavities connected with it, afford an ideal gateway for infection. Here are listed the teeth, accessory nasal sinuses and the tonsils and adenoids. It is the latter, the tonsils and adenoids as foci of infection, that we will consider.

As yet there has been no satisfactory answer to the question of the role played by the tonsils in the economy of the body. It does not follow from this that they have no influence on the organism, but extensive observations on children on whom tonsillectomies have been performed have not shown any disturbance as a result.

That the tonsils harbor various bacteria is shown by T. Nakamura[1] in a bacteriological study of 2,048 tonsils removed at the Mayo Clinic during a period of one year, on account of recurring attacks of tonsillitis or more often because they were believed to be foci of infection in patients suffering from ulcer of the stomach, chronic arthritis, myositis, nephritis, etc. Of a group of 1,250 tonsils, fifty-two per cent revealed hemolytic streptococci, fifty-eight per cent green producing, and eighteen per cent indifferent streptococci, alone or with other

*Read at the meeting of the Southside Virginia Medical Association, at Victoria, June 17, 1924.

types. In 841 tonsils, microorganisms other than streptococci were studied also. Staphylococci were frequently found in large numbers and were usually hemolytic; micrococcus catarrhalis was found in sixty-eight per cent; other organisms included staphylococci aureus and citrens, bacillus influenza, B. diptheriae, B. coli and Friedlander's bacillus.

Giulio Martuscelli and Bozzi Pasquale,[2], in an attempt to determine the role played by the tonsil in the development of bacterial infection, conducted a series of experiments consisting in removing as thoroughly as possible one tonsil in dogs, waiting until the operative area had completely healed and then smearing on it an active culture of virulent microorganisms. The neighboring glands were then investigated for any evidence tending to show whether or not the residual fibrous tissue allowed penetration of the bacteria inoculated, and thus gather some information as to the role of the tonsil with respect to bacterial invasion. From their findings the authors are led to conclude that the tonsil forms in truth a portal of entry for bacterial infection and that when they are removed and there is interposed in its stead a newly formed fibrous tissue the latter practically always forms an effective barrier against the passage of microorganisms.

The diseased tonsil may be of any size. It may be large and mushy with a moth-eaten appearance, or small and fibrous, or again it may be buried so deep between adherent pillars as to be hardly visible. The surface usually has a glazed appearance and the crypts, though often invisible, may exude on pressure fluid pus or cheesy masses. Adherent pillars are a sign of previous inflammation. The question of determining an infected or diseased tonsil and the part it is playing in some chronic condition is no easy matter. The writer believes that the inspection and examination of the throat is the least important link in the examination. What is more important is a careful history and a thorough physical examination and checking by an internist, particularly in adults whose chief complaints may lie outside of the throat.

Most of us are familiar with the usual pathological conditions for which infected tonsils and adenoids are held responsible, namely, endocarditis, rheumatism, chorea, myositis, pyuria, recurrent infections of the nasopharynx, otitis, eustachian catarrh, deafness, mouth breathing and cervical adenitis. However, it is not very widely recognized that infection in the tonsils and adenoids is frequently the explanation of an attack of hematuria and albuminuria, and that tonsillectomy is a necessary mode of treatment. The writer has recently seen two cases of acute nephritis with severe hematuria in children, where no definite etiology could be established. Neither case gave a history of having had any of the communicable diseases, but both cases had marked post-nasal infection, with enlarged and infected tonsils. In this connection two cases of medium and marked severity of kidney infection are cited by Edmund Cautley[3] as entirely clearing up upon the enucleation of the tonsils. In such conditions where no definite etiology can be established, Cautley says that the tonsils are especially to be viewed as a focus of infection, but it is a moot point whether there should be an enucleation at once or not until the hematuria has subsided.

W. J. Mayo[4] says acute nephritis is often due to toxin, not bacteria, from foci in teeth, tonsils, gall-bladder, duodenal ulcer, etc., and especially is this true in those cases of acute nephritis going on to chronicity.

The writer recalls the case of a young dentist, under thirty years of age, who had been refused life insurance on account of an albuminuria and a few casts. No definite foci of infection could be found and his physical examination was entirely negative except for enlarged "mushy" tonsils. His previous history showed no definite attacks of acute tonsillitis. He was advised to have his tonsils removed and, since their removal, he has been able to obtain life insurance at the usual rating. Of course he was given the usual advice as to diet and habits but to my personal knowledge he followed neither but did take one 8 oz. bottle of Basham's mixture prescribed by his family physician.

Another condition which I believe is often due to focal infection, particularly in the tonsils and adenoids, is malnutrition, especially in children. Earl M. Tarr[5] says that the study of a large number of records shows that diseased tonsils are a prominent factor in undernutrition.

In our enthusiasm for eradicating foci of infection we must not lose sight of the fact that the primary focus, wherever it may be, is not always the major focus. A careful study may reveal secondary foci in the stomach, gall-bladder, appendix, etc., and it will be readily

seen that advising such a patient to have infected teeth and tonsils removed without attempting to treat the other conditions is very apt to lead to disappointment.

One often hears the remark that too many tonsils are being removed. That may be true in adults, or rather the adult cases should be more carefully selected, but the writer does not believe for a minute that too many children have their tonsils removed. All of us know that childhood is the period of all periods in which to correct handicaps and prevent disease, and we also know that children with clean throats are certainly less prone to middle ear disease, mastoiditis, endocarditis, etc., than those with infected tonsils. A well known pediatrician has said that no child should ever be allowed to have but one acute attack of follicular tonsillitis.

Tonsillectomy should be regarded as a major operation, should carry the same well balanced indications as any other major operation and, in my opinion, is the only procedure justified in the treatment of diseased tonsils. The crying needs are not new methods nor new instruments, but better diagnoses and more careful selection of cases for operation.

Properly applied tonsillectomy has wonderful potentialities, improperly applied it will surely be disappointing to both patient and physician.

BIBLIOGRAPHY.

1. T. Nakamura. The Bacteriology of Extirpated Tonsils and Its Relation to Epidemic Tonsillitis. Ann. Surg. 79:24, Jan., 1924.
2. Giulio Martuscelli and Bozzi Pasquale. Role of the Pharyngeal Tonsil in the Development of Bacterial Infections. Arch. Ital. di Otol, etc., Naples, 34:178, April, 1923.
3. Edmund Cautley. The Kidneys and Tonsillar Infection. Arch. Pediat. 40:84, Feb., 1923.
4. W. J. Mayo. Hematogenous Infection of the Kidney. J. A. M. A., 1919, LXXIII, 1923.
5. Earl M. Tarr. Tonsillectomy in Infancy and Childhood. Arch. Petiat. 40:20, Jan., 1923.

Terminal Building.

INTUSSUSCEPTION.*

By FRANK HELVESTINE, Jr., M. D., University, Va.
Department of Surgery, University of Virginia Medical School

Over thirty per cent of the cases of acute intestinal obstruction are caused by intussusception. This condition is more frequently observed in infants and children than in adults. In a series of 115 cases of intussusception Pitts[12] reports that ninety per cent of the patients were under fifteen years of age. Codman[3] in a series of twenty-seven cases reports an incidence of sixty-six and two-thirds per cent in infants and children, Goldschmidt[6] an incidence of sixty-five per cent in twenty cases, and McGregor[8] states that in his fifty-nine cases ninety-three and three-tenths per cent of the patients were under twenty years of age. In a series of twenty-five cases of intussusception operated upon at the University of Virginia Hospital, seventeen, or sixty-eight per cent, of the patients were under fourteen years of age. In the remaining eight patients the ages ranged from seventeen to sixty-nine years. Nine of our patients were one year of age or under; the youngest was seven weeks old. Males are more often affected than females. Holt[7] records the male incidence in 268 cases as sixty-five per cent; while in Bolling's[1] series of fifty cases sixty-two per cent were males. In our series there are thirteen male patients and twelve female.

The etiological factors concerned in intussusception in infants and young children are different from those in adults. In the former the cause is generally to be looked for in some abnormality of development or function, or in both. The great mobility of the cecum, ascending colon and ileum in early life is generally thought to be a predisposing factor. In the young the bowel is much more responsive to irritants and its movements less well regulated than in the adult. It has been shown experimentally that abnormal peristalsis may cause intussusceptions. Nothnagel[10] has shown by the application of electric stimuli to the wall of the intestine in experimental animals that invaginations could be formed by the irregular action of the the intestinal musculature. Morris[9] was able to obtain like results by the application of a small amount of sodium carbonate to the wall of a rabbit's ileum. In infants and children peristalsis may readily be stimulated to an abnormal degree by the presence of some diseased condition of the bowel itself, or by some dietary indiscretion. In fifty per cent of van de Ven's[14] cases there had been some preliminary gastro-intestinal derangement. Perrin and Lindsay[11] believe that due to some gastro-intestinal disturbance there is a swelling of the lymphoid tissue of the intestine, which, when it becomes enlarged, acts as a foreign body in the intestinal wall. The presence of this tumor they believe is the cause of the majority of intussusceptions. In a certain number of cases in both

*Read before the Piedmont Medical Society, Charlottesville, Va., May 31, 1924.

infants and adults a Meckel's diverticulum has been found to be the cause of the invagination. This structure may become inverted and act as a polypoid tumor projecting into the lumen of the gut. Elliot and Corcscaden[5] collected twenty-nine cases from the literature in which intussusception was associated with Meckel's diverticulum. The mobility of the cecum and ileum seen in the infant may persist in the adult and may act here also as a cause of intussuscepton. Cubbins[4] calls attention to the length of the mesentery of the terminal ileum and the presence of a mesentery of the ascending colon as etiological factors in certain cases. Tumors of the intestine are a comparatively frequent cause of intussusception in the adult. Of 300 adult cases collected by Elliot and Corcscaden, thirty-three and one-third per cent of the intussusceptions were due to tumors. In sixty instances the tumors were benign and in forty malignant. Non-malignant ulcerations may also cause intestinal invagination. In certain cases no cause of intussusception can be found.

Only two of our series of seventeen cases in infants and children under fourteen years of age gave any history of an exciting cause of their trouble. In one of these cases the attack followed the eating of a large quantity of berries, and in the other case the trouble started after coasting, the child lying on the sled on his abdomen. Nine of the seventeen cases showed a very movable cecum and ileum. In one case an inverted Meckel's diverticulum was found to be the cause of the intussusception. This patient was a girl four years of age who was brought into the hospital with the typical signs and symptoms of intussusception, the attack having begun four days previously. In the series of eight cases in adults, intussusception was due to the presence of a tumor in five instances. In two cases there was found to be a very movable cecum and ileum, and in one case a Meckel's diverticulum was found at the apex of the invagination. This diverticulum was not inverted but was plastered down to the gut wall causing a dimpling which was evidently the starting point of the intussusception.

Clubbe[2] recognizes four types of intussusception: Ileocecal, enterocolic, enteric and colic. There are two varieties of the first type; one in which the ileocecal valve forms the apex of the invagination, and a second in which the head of the cecum forms the apex. There are also two varieties of the enterocolic type. In the first, the invagination begins in the ileum and passes through the ileocecal valve increasing at the expense of the cecum and colon, while in the second, the intussusception begins in the ileum, but, instead of passing through the valve, pushes into the cecum and colon. In this last variety, on reduction, when the cecum is unfolded, it is found to be empty, while in the first variety the cecum is found to contain small bowel after it is unfolded. The terms enteric and colic are self-explanatory. The majority of intussusceptions are ileocecal in type. In our series of twenty-five cases, ten of the intussusceptions were ileocecal, six were enterocolic, six were enteric and three colic.

The behavior of the intestine in the formation of invaginations has been observed in the experiments of Nothnagel and Morris. Upon stimulation of the bowel the circular muscle fibers at the point stimulated suddenly contract in tonic spasm; peristaltic movements of the longitudinal fibers of the neighboring gut then cause a slowly progressing engulfing of the portion of bowel which is in a state of spasm, and the ascending intussusception thus continues until the mass of engulfed mesentery becomes so large as to prevent further progress.

The pathological changes of the intestine caused by intussusception are dependent upon changes in the circulation. The veins and lymphatics are compressed, because of their relatively thin walls, before the arteries. Thus venous engorgement is introduced. Fluid and blood escape from the vessels and infiltrate the intestinal wall with subsequent escape of blood into the intestinal lumen. The involved intestine becomes markedly edematous and it is because of this condition that reduction of the intussusception is so often difficult. When the arterial supply becomes embarrassed gangrene ensues. Obstruction of the intestinal lumen may be entire or partial. In certain cases in which obstruction is only partial the normal outer portion of the intussusceptum, or the entering portion of the intestine, may become adherent and unite with the upper end of the intussuscipiens, or receiving intestine, allowing the invaginated portion to slough and be passed per rectum. Elliot and Corcscaden were able to collect forty-three cases of this character.

In eight of our cases the intestine had un-

dergone gangrene and in one case there was an ulceration of the head of the cecum. Three of the tumors causing intussusception were benign and two malignant. The benign tumors included a myoma of the ileum, an adenoma of the ileum, and a "polyp" of the sigmoid. The malignant neoplasms were both sarcomatous, one situated at the duodeno-jejunal junction, and the other in the head of the cecum.*

In ninety-six per cent of our cases the patients complained of severe abdominal pain, in most instances cramp-like in nature, accompanied by nausea and vomiting. In only three instances was the vomitus fecal in character. Stools containing blood and mucus appeared in seventy-two per cent of the cases. The majority of the patients were constipated and the stools contained no fecal matter. Diarrhoea was present in three cases. The temperature was rarely over 100° F. The leukocyte count varied from normal to 28,000; the average was about 15,000. The abdomen was distended in sixty-eight per cent of the cases, and in the majority of cases tenderness was elicited on palpation. Active peristalsis or enlarged loops of bowel were present in thirty-two per cent of cases. A mass was palpable either on abdominal or rectal examination in seventy-six per cent of the patients. This mass was usually described as "sausage shaped." In nine cases the mass was situated in the right lower abdomen; in four cases in the midline below the umbilicus; in two cases at the level of the umbilicus to the left of the midline; in the right upper abdomen in two cases; at the level of the umbilicus to the right of the midline in one case, and in one case the mass protruded at the anus.

The summary of a typical case would be somewhat as follows: The patient, usually an infant or young child, is attacked with severe abdominal pain, cramp-like in nature. Nausea and vomiting soon appear; constipation is obstinate and only mucus and blood are passed per rectum. The abdomen is distended and visible peristalsis can be seen. Tenderness is general and a sausage shaped mass is palpable. The mass may be distinguishable on rectal examination and the examining finger may bring away mucus and blood. Temperature is 100° F., and leukocytes 15,000. The patient appears ill and the pulse is fast and weak.

The diagnosis of intussusception is usually not difficult. Intestinal obstruction was recognized in ninety-six per cent of our cases, and the nature of the obstruction was diagnosed correctly in sixty-four per cent. In infants and children intussusception has to be differentiated from ulcerative colitis and Henoch's purpura. Several cases were referred to us with a diagnosis of appendicitis. In adults intussusception must be differentiated from other forms of intestinal obstruction, principally volvulus. It is in those cases in which obstruction is not complete and fecal stools are passed that diagnosis is at times difficult. An early diagnosis is imperative.

The treatment of these cases should be operative at the earliest possible moment after the onset of the attack. Palliative measures which are intended to reduce the intussusception through distention of the bowel by air or fluid should not be attempted when a surgeon is available. The danger of perforation of a gangrenous gut by such a procedure is very great and the chances of relieving the obstruction are very small. Purgatives should never be given as they only aggravate the condition. That an intussusception sometimes reduces itself is indicated by the cases with histories of several attacks. The purpose of operation is two-fold: first, to reduce the intussusception and, second, to prevent a recurrence. The method of reduction employed is that proposed by Senn, in which an attempt is made to express the intussusceptum from the intussuscipiens by squeezing from below upward. The invaginated portion is milked from its sheath. Traction is contraindicated. Tumors, diverticula and ulcers should be removed to prevent recurrence. The treatment of an abnormal movable cecum and ileum is more complicated. A number of operations have been devised with the purpose of attaching the cecum to the abdominal wall and shortening the mesentery of the ileum. Cubbins recommends suturing the ileum parallel to the cecum to prevent this condition. Bolling says that in children no attempt should be made to anchor the cecum. Thorner[13] reports a case in which intussusception recurred three times after the first operation at which time the cecum and ileum were sutured to the peritoneum. At the fourth operation a lateral anastomosis was formed between the ileum and cecum. If gangrene has occurred, resection has to be done. In extremely ill patients it is well to bring the mass up through the incision and form an en-

*This case has been described in detail by Dr. S. H. Watts, Ann. Surg. vol. 53, p. 409, 1911.

terostomy or colostomy as the case may be. In such cases the anastomosis will have to be performed at a later date.

Three cases of our series were treated by reduction of the intussusception alone. In six cases after the reduction of the invagination was accomplished the cecum was sutured to the lateral abdominal wall, and in two cases the mesentery of the ileum was shortened after reduction. Resection with immediate anastomosis was performed in eight cases, and in one case an enterostomy and in another a colostomy was done after bringing the involved bowel outside of the abdominal cavity. Enterotomy was done four times; in three instances, for the removal of a pedunculated tumor, and in one instance for a Meckel's diverticulum.

Several factors influence the prognosis in these cases: (1) the age of the patient; (2) the acuteness of the attack: in acute attacks obstruction is most complete and gangrene appears earliest; and (3) the time elapsing between the onset of the attack and operation; the amount of time varies directly with the degree of intoxication.

The mortality in intussusception is very high. Forty per cent of our patients died. There was a mortality of fifty-five per cent in infants of one year of age or under, thirty-seven per cent in children from one to fourteen years of age, and twenty-five per cent in adults. Only one of the eight patients, a child eight years of age, in which the intestine was gangrenous, recovered. In the cases in which resection was done fifty per cent recovered. One of these patients was the child mentioned above. All of the acute cases operated upon within twenty-four hours after the onset of the attack recovered: of those operated upon after the first twenty-four hours only twenty-three per cent recovered.

Comment

Intussusception is one of the acute abdominal conditions which has thus far failed to yield good results to modern surgery. It is strictly a surgical disease and requires emergency treatment. Intussusception is the most fatal form of intestinal obstruction, due to the fact that an early diagnosis is at times difficult because in some cases the obstruction is not complete. Gas and fecal material may be passed per rectum which may cause much confusion of the picture. In children the practitioner finds it difficult to differentiate the condition from other less serious gastro-intestinal upsets. A diagnosis at the earliest possible moment is imperative, and with care a diagnosis should be made. Prompt application for surgical treatment is essential. The high mortality in these cases is not due to the lack of ability on the part of the surgeon or any fault in his methods, but it is rather an index to the efficiency and diagnostic ability of the medical group which he serves.

References

1. Bolling, R. W. Ann. Surg. vol. 78, p. 349, 1923.
2. Clubbe, C. P. B. The Diagnosis and Treatment of Intussusception. Oxford University Press, London, 1921.
3. Codman. Boston Med. & Surg. Jour., vol. 158, p. 439, 1908.
4. Cubbins, W. R. Surg. Gynec. & Obst., vol. 20, p. 177, 1915.
5. Elliott, E. & Corcscaden. Ann. Surg., vol. 53, p. 169, 1911.
6. Goldschmidt, W. Mitteil, a. d. Grenzgeb. d. Med. u. Chir. Jena, Bd. 34, s. 112, 1921 (Abst. Jour. A. M. A. vol. 77, p. 1851).
7. Holt, L. E. The Diseases of Infancy and Childhood. D. Appleton & Co., New York, 1922.
8. McGregor, Scot. Med. & Surg. Jour., vol. 19, 1906.
9. Morris, R. T. Lectures on Appendicitis. G. P. Putnam's Sons, New York, 1897.
10. Nothnagel (cited from Rost, Pathologic Physiology of Surgical Diseases. P. Blakiston's Son & Co. Philadelphia, 1923).
11. Perrin, W. S. & Lindsay, E. C. Brit. Jour. Surg. vol. 9, p. 57, 1921.
12. Pitts. Brit. Med. Jour. vol. 2, p. 574, 1901.
13. Thorner, M. Jour. A. M. A. vol. 80, p. 1065, 1923.
14. van de Ven, J. C. Nederlandsch Tijdschrifty, Geneeskunde, vol. 2, p. 1723, 1922.

SPASMOPHILIA IN INFANTS.*

By ST. GEO. T. GRINNAN, M. D., Richmond, Va.

Spasmophilia is the term employed to define the group of metabolic disorders usually seen in infants and manifested by irritability of the central nervous system. This class embraces certain disorders now known to be manifestations of tetany, such as laryngospasm, holding breath spells, convulsions, bronchospasm, rotary head movements and nystagmus. Rickets may or may not be present; more frequently it is present.

The most frequent age is five to eighteen months. Seventy-five per cent of the cases occur in January, February and March. Very similar symptoms are produced by partial removal of the parathyroids, accidentally or experimentally.

Laryngospasm may come on suddenly and be so severe as to demand tracheotomy in a

*Read at the Richmond, Va. Academy of Medicine, March 25, 1924. From the Department of Pediatrics, Medical College of Virginia, Richmond, Va.

few days; from twenty to fifty spasms may occur daily. More convulsions are caused by tetany than by any other cause. It is generally accepted that the frequently occurring convulsions of tetany almost always leave some permanent injury, even though it be slight. Three thousand, five hundred convulsions have been reported in six months from one child.[1]

Spasmophilia was not understood until the study of chemistry and physics was combined with medicine.

For latent tetany, or where the diagnosis is in question, Chvostek sign or facial phenomenon is the most reliable sign. It consists of a quick contraction of the muscles about the mouth, face, or temporal region when the facial nerve is slightly tapped.

The Peroneal sign is more valuable than Trousseau's sign. On tapping over the peroneal nerve at the head of the fibula a quick outward jerk of the foot follows.

Electrical tests are more accurate than the above mentioned, but require electrical apparatus such as is used in hospital work. The increased irritability is measured by the galvanic current, usually on the peroneal nerve.

Life is dynamic and not static and the physical chemist must be active in this work.

As chemistry is the science of the transformation of matter and physics the science of the transformation of energy, life, which from its beginning to its end is a transformation of matter and of energy, is turning more and more to chemistry and physics for the solution of many perplexing problems in the prevention and cure of disease.

"There is constant molecular interchange between the cells and their environment. Cell secretion, cell respiration and cell nutrition are clearly only different aspects of the same whirl of molecular activity."[2]

The study of tetany is the study of stomach acidity, or its complement, alkalinity, and the various accelerators or catalysers called enzymes. The blood has a wonderful capacity for self-adjustment and the preservation of the optimum condition for life.

There are chemical buffers which act chemically to preserve neutrality. A buffer is any substance (present in a solution) which, because of its affinity for either acid or alkali, tends to preserve the original hydrogen-ion concentration of the solution by combining with any acid or alkali which may be added, thus nullifying their effect.[3]

It is the free hydrogen-ions which are responsible for the characteristic properties of all acids. Various foods have the property of binding large amounts of acid and converting the hydrogen into a non-ionized form, thus to all intents and purposes neutralizing the acid. Food of this class renders the hydrochloric acid secreted inactive. Cow's milk has three times as much buffer substance as woman's milk. On breast milk the Ph. has been found to be 3.75 normal infants. On cow's milk, feeding normal infants, the Ph. is 5.3.[4] As the Ph. is expressed in the form of a reciprocal logarithm, Ph. 3 is much greater than Ph. 6. To an infant accustomed to cow's milk, more acid is gradually secreted to account for the larger buffer substance of cow's milk. (As devised by Sorensen, Ph. is a symbol which signifies the logarithm of the reciprocal of the hydrogen-ion concentration).[5] The larger buffer substance continued for a long time will leave little acid, which is necessary to form insoluble tribasic calcium phosphate, thus this important substance is eliminated, leaving the sodium ion in greater excess than the needs of the body. We see therefore that gastric acidity at the height of digestion is controlled largely by the choice of a buffer.

Experimental and clinical evidence points to faulty calcium metabolism as far the most important factor in the etiology of tetany. The study of blood chemistry is now pointing to the inter-relationship of sodium and calcium as an important factor; that is, the ratio in the blood of the calcium and sodium. As calcium is a nerve sedative and sodium is a nerve irritant, a proper balance must be maintained to give a normal nerve irritability. Reduction of calcium and increase of sodium will give increased nerve irritability or spasmophilia. Alkalosis from large amounts of soda for acidosis has frequently produced spasmophilia and tetany. Howland and Marriott have noted great storing up of sodium and potassium and loss of calcium and magnesium in active spasmophilia.[6] When the condition is reversed, the symptoms begin to improve.

Normally, the calcium in infant's blood is 10 to 11 mgm. per 100 c.c. of blood. In eighteen cases of active tetany noted by Howland and Marriott, the average blood calcium was 5.6 mgm. per 100 c.c. serum, a reduction of forty or fifty per cent. Many others have confirmed

this result. With the calcium, which is a nerve sedative, reduced, the sodium ion acts as a nerve irritant. Long treatment of pyelitis by sodium preparation has produced tetany. Limewater or soda should not be used in milk except in acidosis, and the use of magnesia as a laxative should not be long continued.

The diet of most infants suffering from tetany contains a sufficient amount of calcium. Faulty assimilation, due to various causes, is the symptom-complex. Lowered gastric acidity or season, or both, seems to account for the failure of calcium assimilation. A number of investigators including Von Norden have shown that calcium is known to remain in solution only in an acid medium and presumably may only be absorbed from such a medium.[7]

Spasmophilia is rare when breast milk is taken. Long feeding on cow's milk that has been skimmed or heated is often the cause of tetany, specially when little or no other food is used.

The whey of cow's milk aggravates tetany.

During the summer months, cow's milk has three times as much vitamin as it has in the winter, the proportion of salts is also decreased in winter. The experiments of Holt and Fales showed that "the best absorption of calcium intake in young children is when the fat is at least 3.0 grams for each kilogram, and the amount of calcium oxide in the diet is 0.003 to 0.005 grams for each gram of fat."[8] Their experiments showed that low fat intake brings about abnormal digestive conditions with acid foul stools, and calcium intake is much better when fat intake is generous.

Inorganic phosphate of infants' blood can be raised to normal by frequent exposure to the sun's rays and the same result can be accomplished by irradiation with the carbon arc lamp. This chemical action is brought about by the ultra violet ray rather than the visible rays of the spectrum. As demonstrated by Hess, there is a seasonable tide of phosphates and a seasonable tide of calcium. This is due to the fact that the composition of the rays of the sun is not the same at all times in the temperate zone.[9]

Meteorological observation made in New York showed the ultra violet ray much richer in the spring and summer months. With this variation in ultra violet ray, there is a variation in the amount of inorganic phosphate and of calcium the body can metabolize, or a seasonable tide of growth. It is possible to raise the calcium from a lowered 7 mgm. per 100 c.c. to a normal 10 mgm. per 100 c.c. by means of the carbon arc light. Hoag, of Boston, studied eleven cases of tetany using ultra violet ray 50 cm. from the surface of the body.[10] He was able in fourteen days to raise the calcium plasma to normal. Irradiation should not exceed forty minutes a day, beginning with two minutes to the back and two minutes to the front, gradually increasing daily.

Calcium lactate, calcium chloride, ammonia chloride and hydrochloric acid are used for tetany. Calcium lactate, which has been quite widely used, contains only thirteen per cent of calcium, and it would require 140 grains daily to be of value, or two teaspoonfuls. Calcium chloride is obtained in two forms, the crystalline, eighteen per cent calcium, and the anhydrous, thirty-six per cent calcium. It is the anhydrous calcium chloride that we use, giving fifteen grains four times a day. The effect produced by this is very rapid and usually in two or three days the spasmophilia subsides.

Scheer put hydrochloric acid in milk and got an increase of calcium in the blood serum.[11]

Calcium chloride given for relief of tetany, if continued too long, may sometimes cause hyperpnea. In such cases, a marked lowering of plasma bicarbonate may be found. This is probably caused by more complete absorption of the chlorid ion than the calcium ion. The result is much the same as hydrochloric acid placed in the food. In such cases, there is an elevation of the hydrogen ion concentration of the plasma.

The most important instance of a colloid is the human body, "all of the tissues, muscles, fluids of which represent colloid suspensions."[12]

Milk is a colloid and as such is subject to disturbance by small change in the system. All colloid substances are very sensitive to forces affecting their stability. Milk which has been subject to drying, aging, freezing and alkalies is changed. The buffer quality of cow's milk can be brought nearer the buffer of human milk by means of hydrochloric acid or lactic acid. Many pediatricians feed lactic acid milk with the purpose of avoiding the trouble encountered in feeding sweet milk.

Gamble and Ross in their study of tetany note that "In every case the cessation of the use of hydrochloric acid or calcium chloride resulted in prompt recurrence of tetany. When

cod-liver oil, orange and farina are added to the diet, there is no return of tetany."[13]

Hoag, of Boston, as noted, regards the hydrochloric producing substances as only temporary, but with the aid of the mercury vapor lamp he was able to raise the calcium to a normal of 9.5 mgm. in 100 c.c.[14]

Cod-liver oil and shark oil supply something which is optimal for cellular function. Cod-liver oil has the power of radiant energy. Cod-liver oil has the power of increasing the concentration of calcium and inorganic phosphorus in the blood serum. Its action is on the body as a whole and not on the intestinal tract.[15]

We see that climate and season exert a very marked influence on growth and nutrition and that diet must change with season. Malling-Hansen noted that children grow more rapidly in the spring and summer.[16]

This does not encourage us to send children far north in the summer, unless liver lipoid is given to supply the lack of radiant energy.

In February, 1924, two infants, aged ten days, were treated, one weighing four and one-half pounds was fed on whole lactic acid milk with Karo syrup. The progress was rapid. The other infant, weighing six pounds, was fed on diluted sweet milk with Karo syrup. The progress was rapid. When thirty-seven days old the infant fed on sweet milk took the food with difficulty. This infant began to have trismus, soon ten or twelve convulsions were noted daily and exophthalmus. Typical tetany was present. Calcium chloride was given, fifteen grains four times daily for three days, sweet milk was discontinued and lactic acid milk was given. The tetany soon disappeared. There was no recurrence. This is the youngest infant to have tetany I have seen.

Summary

1. In January, February and March, an infant, age ranging from five to fifteen months, feeding on cow's milk, and not up to normal nutrition, should receive cod-liver oil.

2. An infant taking hydrochloric acid producing substances for tetany should receive cod-liver oil, or electrical radiant energy, or direct sunlight (no glass intervening).

3. Alkalies should not be added to cow's milk.

4. During the low seasonal tide of calcium and phosphate intake, lactic acid milk is of valuable therapeutic aid, the buffer substances being almost the same as breast milk, leave hydrochloric acid for the metabolisms of calcium equilibrium for bone and nerve.

Bibliography.

1. Holt and Howland, Diseases of Infancy and Childhood, p. 655, 1923.
2. Haldane, of Oxford. The Future Independence and Progress of American Medicine in the Age of Chemistry. The Chemical Foundation, Inc., pp. 23, 49. 1923.
3. Hiss-Zinsser-Russell. A Textbook of Bacteriology, p. 38. 1922.
4. Marriott-Davidson. The Acidity of the Gastric Contents of Infants, Amer. Jour. Dis. Children, pp. 26, 545. December, 1923.
5. Sorensen, Ergeb. d. Physiol., 12, 1912, p. 527.
6. Howland-Marriott, Quart. J. Med. II., 289, July, 1918.
7. Babbett, et. als., Hydrogen-ion Concentration of Gastric Contents of Infants, Amer. Jour. Dis. Children, 26, 475. Nov., 1923.
8. Holt and Fales, Calcium Absorption in Children on a Diet Low in Fat. Amer. Jour. Dis. Children, 25, 247. March, 1923.
9. Hess, A. F., Lundagen, M. A. A Seasonal Tide of Blood Phosphate in Infants, J. A. M. A., vol. 29, pp. 27, 2210. December 30, 1922.
10. Hoag, Treatment of Infantile Tetany with Ultra Violet Radiation. Its Effect on the Chemical Symptoms and on the Calcium Concentration in the Blood Serum. Amer. Jour. Dis. Children, 26, 186. August, 1923.
11. Scheer, K. Jakrb. f. Kinderh., 97, 130. February, 1922.
12. The Future Independence and Progress of American Medicine in the Age of Chemistry, p. 50.
13. Gamble-Ross, Studies of Tetany, Amer. Jour. Dis. Children, 25, 470. June, 1923.
14. Hoag, Ultra Violet Radiation in Tetany. Amer. Jour. Dis. Children. pp. 26, 194. August, 1923.
15. Park-Guy-Powers. A Proof of the Regulatory Influence of Cod Liver Oil on Calcium and Phosphorus Metabolism, Amer. Jour. Dis. Children, 26, 110. August, 1923.
16. Hess, A. F., Lundagen, M. A. A Seasonal Tide of Blood Phosphate in Infants. Vol. 79, No. 27, 2212. December 30, 1922.

REVIEW OF THE AUTOPSY SERVICE AT THE UNIVERSITY OF VIRGINIA HOSPITAL, FOR THE TERM 1923-24.*

By INDIA HUNT, M. D., University, Va.
Assistant in Pathology, University of Virginia.

The autopsy service at the University of Virginia Hospital serves a double purpose: within the hospital, the autopsy is performed to determine the cause of death, if doubtful, and to make such study of the terminal pathology present as will help to complete the clinical study of the case; this correlation we further seek to make by a review of the clinical and autopsy data at the Clinical-Pathological conference held once every two weeks. For

*Read before the Journal Club, University of Virginia, May, 1924.

teaching purposes, on the other hand, the autopsy table is the best possible means of demonstrating pathology, and is our chief source of material for gross and microscopic study of the alterations produced in the body by diseases processes.

The autopsy series presented here includes the routine hospital autopsies performed from September 1, 1923, to May 1, 1924, making a total of sixty-eight cases for approximately eight months. This is a gain in numbers over last year, in which there were forty-eight cases for the school year. Of these sixty-eight, all deaths but one occurred in the hospital, the exception being a coroner's case referred in from the outside. The autopsies were performed anywhere from forty-five minutes to four days after death, the majority being within six hours after death occurred.

The Medical Service furnished the chief source of our autopsies, thirty-three being from that service; the Surgical Service contributed twenty-one: the Pediatric Service nine: the Genito-Urinary service about three, and the Obstetrical Service one. Of the entire series, there was an equal division as to race, thirty-four being from the white, and thirty-four from the colored race. Thirty-nine were male, and twenty-nine female. As to age, there were ten cases from one to ten years of age (five being less than one year old); eight cases from ten to twenty; twelve cases from twenty to thirty; five cases from thirty to forty; seven cases from forty to fifty; eleven cases from fifty to sixty; seven cases from sixty to seventy; and eight cases scattered from seventy to one hundred.

Review by Services

Surgical Service: On the Surgical Service, peritonitis was the chief cause of death, being the terminal factor in eleven of the twenty-one autopsies from this service. In nine cases, this was general and diffuse, following a ruptured appendix in three cases, intestinal obstruction in one, perforated gastric ulcer in two, salpingitis or pelvic abscess in two, and wound necrosis in one; two cases were localized, both associated with local gangrene of the intestine.

Of the remaining ten cases on this service, four showed fairly frequent post-operative complications, an acute general septic reaction in two instances, and acute renal failure in two. There were four cases of sudden death, in which two were demonstrated to be due to circulatory blockage, one mesenteric thrombosis, and one a bilateral pulmonary embolism; a third was believed (though not proven) to be cerebral embolism; and in the fourth, the evidence pointed to a condition of status lymphaticus. Two cases of neoplasm occurred in this group; one, a large glioma of the right cerebral hemisphere, and the other a diffuse carcinosis of the abdominal cavity. Two cases of fatal gun-shot wound of the chest came to autopsy (one from the medical service). There was one case on this service in which the cause of death, presumably toxic exhaustion, could not be demonstrated anatomically.

Autopsy Series, University of Virginia Hospital, September 1, 1923-May 1, 1924.

Surgical Service—21.

Peritonitis			11
General	9		
Ruptured Appendix		3	
Intestinal Obstruction		1	
Perforated Gastric Ulcer		2	
Salpingitis		1	
Pelvic Abscess		1	
Wound Necrosis		1	
Local	2		
Local intestinal gangrene		2	
Acute septic process			2
Acute renal failure			2
Sudden death			3
Thrombosis		1	
Embolism		2*	
Status Lymphaticus		1	
Neoplasm			2
Diffuse abdominal carcinosis		1	
Glioma of brain		1	
Gunshot Wound			1

*(1 case of embolism relisted under neoplasm group).

Medical Service: On the Medical Service there were thirty-three cases. In this group, the disease-conditions most frequently encountered were tuberculosis, pneumonia, and the cardio-renal syndrome.

In the entire autopsy series, tuberculous lesions were observed in forty-one cases, or slightly more than sixty per cent. In the acute miliary form, it was the direct cause of death in four cases, two adult and two children; sixteen cases showed well-established pulmonary lesions,—tubercles, abscesses, puckered apical scars, etc.; and the remaining eighteen gave presumptive evidence of a tuberculous process by the presence of calcified lymph nodes, organized pleurisy, pleural adhesions, etc.

The records for the past winter have shown an unusually light year for pneumonia fatalities. There were only four cases at autopsy in which pneumonia was the sole or chief cause of death (two lobar and two broncho-pneumonias): and while pneumonia occurred in twenty-five cases of the entire series (or 36.7

per cent), it was chiefly incidental to the main pathological picture, or at most one of the contributing factors. There were six lobar pneumonias, seventeen broncho-pneumonias, one interstitial, and one organizing pneumonia. These records seem to agree very well with the clinical records of the hospital, which show an unusually light winter for pneumonias and respiratory infections in general, in the wards.

Four of the deaths on the Medical Service, then, were due to pneumonia, and two to acute miliary tuberculosis. There was an additional respiratory death from edema of the lungs, in an old chronic case of extreme anthracosis and fibrosis.

The cardio-renal syndrome was fairly frequent in the medical series of autopsies. Seven cases showed this to be the chief pathological picture, the immediate terminal factor being in some cases an uremic toxemia, in others a myocardial failure. In general, the kidneys have proven to be more frequently affected by pathological change, in our series, than any other organ in the body. In all cases of toxic or septic nature, they are the first to give visible evidence of the general bodily disorder. In our series of sixty-eight cases, fifty-eight (or more than eighty-five per cent) showed pathological kidney lesions of various sorts; cloudy swelling or some other acute degenerative process being evidenced in practically all of them; a definite nephritis (acute or chronic) in thirty-two; pyogenic infections (pyonephrosis, pyelonephritis, etc.) in eleven, cysts in six, infarcts in one or two, and various minor circulatory disturbances and anomalies in others.

In three cases, the heart alone seemed the fundamental cause of death: one being an anginal and congestive failure, one a marked congestive cardiac failure, and the other a myocardial failure, accompanying general senile changes. Diseases of the blood-vessels occurred in about the usual ratio; arteriosclerosis was the most constant finding, infarct in about six cases, embolism and thrombosis also in about six, and aneurysm only in one case.

Peritonitis occurred in four cases in the medical series; two cases followed rupture in a typhoid intestine, another was associated with extensive bangrene of the intestine, and one followed puerperal sepsis.

Two cases of typhoid came to autopsy, in each of which death occurred from peritonitis following a perforation, in one, of a typhoid ulcer, and in the other, of a ruptured appendix. Five other cases of acute infectious process were autopsied; one erysipelas, one pyonephrosis, one proliferating enteritis, and two diabetics with pyemia starting from a skin lesion.

The remaining cases on the Medical Service were five in number: one extremely diffuse carcinoma of the liver, one toxic encephalitis (alcoholic), one pellagra, one second degree burn, one probable cerebral embolus (undetermined).

Neoplasms have not been numerous. There have been only two frank malignant neoplasms, mentioned above. Twelve cases of benign tumors have been noted, occurring usually as incidental pathology; of these, the fibre-myomas of the prostate and uterus were most frequent (eight), the others being an occasional lipoma, or dermoid cyst, and one gloma.

Medical Service—33

Tuberculosis		2
Pneumonia		4
Lobar	2	
Broncho	2	
Edema of lungs, fibrosis and anthracosis		1
Cardio-Renal Syndrome		7
Heart Failure		3
Congestive and anginal	1	
Congestive	1	
Myocardial	1	
Peritonitis		4
Typhoid perforation	2	
Gangrene intestine	1	
Puerperal sepsis	1	
Typhoid	2*	
*(Already listed under Peritonitis.)		
Acute Infectious Processes		5
Diabetic pyemia	2	
Erysipelas	1	
Pyonephrosis	1	
Proliferative enteritis	1	
Carcinoma of Liver		1
Arsphenamine Poisoning		1
Cerebral embolus		1
Toxic (alcoholic) encephalitis		1
Pellagra		1
Second Degree Burns		1
Gunshot wound		1

Obstetrical Service: The Obstetrical Service contributed only one case, of a five months' pregnancy complicated by a massive right lobar pneumonia.

Genito-Urinary Service: There were about five cases from this service of which the most interesting were cases of leukoplakial cystitis, marked pyonephrosis, and large diverticulum of the bladder (one case each); the others were chiefly cases of prostatic obstruction, before or after prostatectomy.

Pediatric Service: The Pediatric group included a series of nine cases, an unusually instructive group. The cases were as follows:

One case of asphyxia, in a still-born foetus.

One case of cerebral hemorrhage, with hemorrhage also into the lungs, and pachymeningitis.

One case of probable cerebro-spinal meningitis, complicated by pneumonia and acute nephritis.

Two cases of congenital syphilis, with persistent bleeding before death (both under three weeks of age).

Two cases of acute diffuse miliary tuberculosis, one following on old Pott's disease.

One case of extreme acute nephritis, with general anasarca.

One case of empyema, with collapse of lung, and broncho-pneumonia in the opposite lung.

PEDIATRICS SERVICE—9	
Asphyxia	1
Cerebral Hemorrhage	1
C.-S. Meningitis	1
Congenital Syphilis	2
Miliary Tuberculosis	2
Acute Nephritis	1
Empyema and Pneumonia	1
OBSTETRICAL SERVICE—1	
Pregnancy with lobar pneumonia	1
GENITO-URINARY SERVICE—3	
Leukoplakial cystitis	1
Pyonephrosis	1
Bladder diverticulum, etc.	1
REFERRED IN FROM OUTSIDE—1	

CONCLUSIONS

In conclusion, we believe (1) that the series of autopsies considered shows a fairly average parallel with that of the usual general hospital in this locality, with the exception of the figures for pneumonia, which are unusually low this year. The occurrence of syphilitic lesions also seems to have been below the average, only six being reported in the whole series, and none as the direct cause of death.

(2) The number and variety of cases studied seems satisfactory indication that the students are getting an adequate amount of material for this part of their work in Pathology, at the University of Virginia.

WHY PROFESSIONAL MEN DO NOT ADVERTISE.*

By HARRY BEAR, D. D. S., Richmond, Virginia.
Professor of Dental Jurisprudence, Ethics and Economics, Medical College of Virginia.

I am aware of the fact that I am addressing a body of men and women whose business and interests are intimately interwoven with advertising in one form or another. Indeed, advertising may be the vocation of many of you, but, being human, it sometimes becomes your avocation to come under the supervision of the medical profession. In approaching my subject, I shall limit my remarks to the profession of medicine and its allied branch dentistry.

It is interesting to note that the present attitude toward advertising by the men of these professions rests upon a tradition over 2,000 years old. It was Hippocrates, called the "Father of Medicine," who about 400 B.C. expounded certain principles as to the duties of a physician which remain today just as necessary as ever. Some of our medical colleges require their graduates to subscribe to this "Oath of Hippocrates" promulgated before the dawn of the Christian era. I shall read you its most essential parts:

> "I will follow the system of regimen which, according to my judgment, I consider for the benefit of my patients and abstain from whatever is deleterious. I will give no deadly medicine to any one if asked nor suggest any such counsel. With purity and with holiness I will pass my life and practice my art. Into whatever houses I enter I will go into them for the benefit of the sick and will abstain from every voluntary act of mischief and corruption. Whatever, in connection with my professional practice or not in connection with it, I hear or see in the life of men which ought not to be spoken of abroad, I will not divulge, as reckoning that all such should be kept secret."

The first duty so imposed requires the practitioner to consider above all else the benefit to the patient, because it is the human being itself which is the object of the service. The matter of making something and selling something takes a subordinate place. While it is true that there is a business side to dentistry and medicine, there is a professional service, the relation between the practitioner and the patient differing from that of seller and buyer. It is a trust in which the patient relies entirely upon the practitioner and entrusts his health, and not infrequently life itself, to the knowledge, skill, judgment and sincerity of the practitioner. The patient does not come as a buyer seeking to purchase something more or less specific; the patient does not know what he wants or needs.

To advertise, it seems to me, one must either have a specific commodity or a specific service to sell. A great department store can properly and justly notify the public that it has on hand merchandise of a certain kind or quality at a certain attractive price. A real estate firm must through advertising inform the public that it has for sale or rent such and such a

*Read before Richmond Advertising Club, July 16, 1924.

house. A bank may properly tell the public of the character of its service and the facts which show its financial security. The professional man, however, in refusing to advertise, does not deny the value, the efficiency and the necessity for advertising in business. He daily relies upon this powerful medium not only in his home life but in the very essentials necessary for his professional practice. But, of what can the professional man advertise? Medicine is an inexact and vast science. For the true physician there is no one system or method for the treatment of all cases of even the same ailment. Similar ills in different types of patients present as many varied circumstances. How can he make any public announcement of general interest unless it be but mere boasting of his qualifications and accomplishments? And, even if such advertisements were proper, is the public in a position to adequately judge of these qualifications? And to boast of our past accomplishments would necessitate the disclosure of facts in violation of the confidential relationship existing between the patient and practitioner. This is a personal trust and it is so important that anything which would seek to endanger this confidence would destroy the most valuble asset.

The professional man cannot advertise, not only because the prospective patient cannot know what he wants or needs, but because the practitioner himself does not and cannot know beforehand the character of the service which he will be called upon to render. "Professional knowledge and skill imply more than mere technical knowledge and skill." The patient must not only be examined but the practitioner must be able to understand the history of the case and its future probabilities, and in the light of his experience and judgment advise and dictate what should be done.

How different is this from ordinary business dealings which presuppose transactions between parties meeting on equal terms, each able to look out for his own interest and protected by the present-day high standard of truth in advertising!

Because of the very nature of the services which I have mentioned, no guarantee of results can be given or asserted and hence this important feature of "service advertisements" is closed to the professional man. His code of ethics teaches him not to encourage false hopes by promising success where, in the nature of things, there is uncertainty. In this respect the Code of Ethics of the American Medical Association reads:

"It is unprofessional to promise radical cures; to boast of cures and secret methods of treatment or remedies; to exhibit certificates of skill or of success in the treatment of diseases; or to employ any methods to gain the attention of the public for the purpose of obtaining patients."

You will observe here that even any public announcement or news item, as well as a paid advertisment, which seeks to attract patients, is both undesirable and unethical.

In contrast to the business advertisement where the announcement of price is of compelling interest, the conscientious practitioner, by reason of the uncertainties involved, cannot publicly announce his fee for services before he even sees the patient. A price is supposed to bear some pretty definite relation to the cost of an article, taking into consideration the overhead expense and the necessary profit added. However, there must be much greater flexibility about professional fees as other elements enter into the determination of them. Of the many factors involved is the ability or the inability of the patient to pay for the service. Added to this is the skill and responsibility required for the particular case. And what of those patients who need services and cannot afford to pay for them? They, too, must be looked after. And of those who can pay it is unfair to charge the shop girl of $15 a week the same fee that you would charge the man whose income is $20,000 a year. Realizing this fact you will agree that in the matter of professional services it would be an unjust discrimination to have anything like a fixed fee.

The wisdom of professional ethics prohibiting advertisement is plainly justified as exhibited by the character of such professional advertisements as have appeared. These advertisements are usually, if not untruthful, misleading, because of the intimate nature of the subject matter involved. The practice that it represents is so often unscrupulous that professional advertising has come to be looked upon as a badge of quackery, not alone by the profession but by all observant people of a community. There is an almost universal opinion among the professions that the paid public advertisement of personal qualifications, professional ability, guarantee of service (which in the very nature of things cannot be given), and fees for service, are improper, in bad taste and not consistent with the personal

trust existing between the practitioner and the patient.

"Ethical rules are not mere fads invented by medical associations for the sake of justifying their existence but are formulations of unwritten principles of conduct which have commended themselves with the sanction of the ages as aids to the great purpose of rendering each practitioner more useful to his fellow creatures." These rules are maintained and exacted for the benefit and protection of the public.

410 *Professional Building.*

SOME ASPECTS OF VENEREAL DISEASE TREATMENT.

By S. G. GILL, A. B., M. D., Norfolk, Va.

The incidence or occurrence of venereal disease is quite large. One authority states that "Probably ten per cent of the adult male population of the United States is syphilitic, but that the percentage of syphilis among women is much lower than among men."[1] Another authority writes, "It is is highly probable that every male who indulges in promiscuous intercourse, sooner or later acquires a gonorrhea. The percentage of males so affected varies, according to different authorities and according to various countries, between fifty and one hundred per cent."[1] "Among women, gonorrhea is more severe and less common than among men. The proportion of men to women is 16 to 1. Almost one-third of the reported cases of gonorrhea occurred in married women, to whom the infection had been conveyed by their husbands."[2] "It is estimated that one-eighth of all of the diseases of women are occasioned by gonorrheal infection attacking the vagina or the cavity of the uterus and thence extending to the fallopian tubes and ovaries."[3]

Although syphilis and gonorrhea are among the most prevalent diseases to which the human body is heir to today, and although these two diseases cause so much mental, moral, physical and economical suffering, there is as yet a hesitancy, a false modesty that tends to prohibit their free discussion. It is certainly of the greatest importance that physicians should be cognizant of venereal diseases and their prophylaxis, and the treatment of these diseases, discussing them freely, else persons interested will suffer from false knowledge or secrecy.

Prophylaxis

Two forms of prophylaxis have been advised from time to time. These measures are chemical prophylaxis and sex education.

Chemical Prophylaxis

"Proper chemical prophylaxis against venereal disease should be made readily available to all who are exposed to possible infection. Syphilis and gonorrhea are morbid cancers attacking the social fabric and we are justified in using chemical prophylaxis as one of the methods in preventing venereal disease."[4] The only argument against using chemical prophylaxis in venereal disease control is the expression by some organizations that in many instances this is a method which condones and tolerates sexual promiscuity, for its use theoretically removes the fear of venereal diseases; however, all attempts at the extinction of prostitution present throughout the centuries one unbroken record of failure, and the sexual impulse, the strongest to which human nature is subject, has asserted itself. The procedure is as follows:

(1) Urination and thorough washing with soap and water of the external genitalia, lower abdomen and the inner surface of the thighs.

(2) Application to the parts of mercuric bichoride, 1-1000.

(3) Injection into the urethra of 1 to 5 c.c. solution protargol or argyrol, to be held five minutes.

(4) Smearing the penis, after drying, with calomel ointment, thirty-three per cent. and pushing a little into the meatus.

When this procedure is impracticable, washing and the use of one of the commercially prepared prophylactic packages must be depended upon.

Sex Education

Sex education, while not outwardly so apparent today, is gradually being looked upon in a more common-sense manner than in former times. The child becomes "sex conscious" in the majority of instances, at about nine years of age, and at this time it is proper that sex instruction be begun. Such information should be given by the parents, the problem being treated in a general way. The biological histories of plants and animals should be utilized, and, as a child grows, his companionship, play, sports and books should be carefully supervised. The usual sports of childhood and youth are of tremendous value in directing the sexual urge into constructive and useful channels of instruction."[4]

Courses in mental and social hygiene should be a part of the curriculum of the High School, College and University, and of the public lecture course of the social institutions such as the Y. M. C. A., Y. W. C. A., Knights of Columbus, Women's Clubs, and similar organizations. If the veil of prudery and false modesty is eliminated from the subject of venereal disease, the public conscience will be aroused from its lethargy of indifference and unconcern.

Other methods of combating venereal disease would include the following:

(1) Religious and ethical instruction intelligently related to the avoidance of sexual contact.

(2) Protective social measures to prevent untoward results of casual acquaintanceship in public.

(3) The reporting of venereal diseases without infringement upon personal liberty.

(4) Co-operation by the clergy, by demanding evidence of a careful medical examination before marriage.

Treatment

When we come to the actual treatment of venereal diseases, there is one point which stands out pre-eminently above the others. That is the early recognition of these diseases. Syphilis and gonorrhea are singularly prone to cause tissue changes, if not treated in the early stages, and, the sooner they are recognized and treated, the more hope there is of an early recovery.

We have treated many cases at the Venereal Clinic, who in all probability contracted syphilis over twenty years ago. These individuals are for the most part physically or mentally incapacitated, or both, and are a sociological, economical and financial burden on the community, eking out a miserable penurial existence. So many of them have told me, "Yes. I had a sore, but it was several years ago and it didn't take but a few weeks to heal."

Most every physician has treated or heard of the patient with the "morning drop" of gonorrhea, who has flitted from one drug store to another, in vain attempts to probably cure some deep-seated infection with injections. I believe if acute cases of gonorrhea and syphilis could be seen and recognized early by a competent physician or specialist that, with the co-operation of the patient, the disease could in most cases be cured.

Syphilis Prophylaxis

Clinical records show that a limited number of persons treated with two half doses of arsphenamin, after the first day of exposure and before the primary symptoms have had time to appear, have never developed symptoms of syphilis.

In the treatment of syphilis, it is generally recognized and emphasized that the patient has to be treated as well as the disease. The physical condition of the patient and the toxic effect of the drugs have to be continually watched. Often times it is advisable to allow periods of rest. Particularly is this true, when there arise, during the course of treatment, dermatoses, itching, hepatic disturbances, idiosyncrasy for the drugs, or severe albuminuria. Some patients cannot tolerate as much mercury medication as others. When the kidneys become unduly irritated, the elimination of arsenic is obstructed, and further treatment may do much injury.

I have found that an important detail in arsphenamin administration is to have sharp pointed needles. This may seem a trivial matter to the physician, but it is of vast importance to the mental attitude of the patient.

It takes longer to cure syphilis than most people realize. Even in the first few weeks, before the Wassermann test becomes positive, and the diagnosis is made by the microscopic "dark field" examination of the spirocheta pallida, at least a year's treatment is necessary, with two more years of observation, before a cure can be expected. Clinical observations of primary lesions can no longer be relied upon, and repeated dark field examinations are of vast importance in establishing an early diagnosis. Although the Wassermann test is of such immense value in diagnosing syphilis after the third week of the initial sore, if the clinical symptoms point to the disease, it is wise to give adequate treatments. At times we have found a negative blood Wassermann test revert to a positive, after a few injections of neo-arsphenamin. We have commonly found patients who gave a negative blood, but a positive spinal fluid Wassermann test. It is very important to have a spinal fluid Wassermann test done before a patient is discharged as cured.

In order to have a working basis for syphilitic treatment, we administer to each patient weekly injections of arsphenamin or neo-

arsphenamin, also mercury salicylate. One course consists of eight injections of arsphenamin or neo-arsphenamin and fifteen of mercury, by all means giving two courses to each patient, regardless of the result of Wassermann tests. A Wassermann test is taken four weeks after the first course is completed and four weeks after the second course. If test is negative, another test is advised in eight weeks, then at intervals of from two to four months, one course to be given annually. If the blood Wassermann test is positive after treatment, treatment is continued, with periods of rest, according to the condition of the patient. Iodides alone, and mixed treatments, are given to secondary and tertiary cases. A spinal test is advised after the second course of treatment and, if positive, treatment is recommended.

Gonorrhea and Other Venereal Diseases

My remarks on the treatment of other venereal diseases will be brief.

Acute Anterior Gonorrhea

In the treatment of acute anterior gonorrhea, the injection of the silver salts has proved efficient. When the acute disease is limited to the anterior urethra, it is sometimes possible to effect a cure in a few weeks. If the gonorrhea is seen in the first few days, the repressive treatment is advised by Keyes, rather than the abortive treatment, because the disease is intensified if the abortive treatment fails. The repressive treatment, in brief, is for the expert and consists of the injection of acriflavine, 1-4000, argyrol, protargol or irrigations of potassium permanganate. Sounds are passed gently, increasing in size, first to bulb and then to bladder, at four day intervals, until a 28 French sound passes into bladder without any reaction. However, I do not use any particular method exclusively, and it is well to take into consideration the resistance or fastness of the gonococcus to germicides, necessitating a change, as advocated by Williamson.[5]

Chronic Anterior Gonorrhea

This can be treated by irrigations, sounds, anterior dilatation, the use of strong silver solutions. fulguration for follicles and localized lesions that harbor the gonococcus or unduly worry the patient.

Acute Posterior Gonorrhea

In acute posterior gonorrhea, rest is advised. Hot sitz baths are prescribed for an acutely enlarged prostrate and morphine suppositories for severe pain.

Chronic Posterior Gonorrhea

In chronic posterior gonorrheal urethritis, systematic vesical and prostatic massage, irrigations, the passage of sounds, Kollman's dilators and the cysto-urethroscope, and instillations of silver nitrate to the verumontanum are to be given as indicated. If a thorough examination and treatment in chronic gonorrheal urethritis is made with sounds, dilators, urethroscope and massage, many of these cases can be cured; but it is always best to make a guarded prognosis, as some of these cases may require the use of sounds, massage and irrigations for months.

Prognosis

"A gonorrhea begins and God alone knows when it will end," said Ricard, more than a generation since, and the aphorism is as true today, as the day it was uttered.

The duration of chronic urethritis is always protracted and requires great patience on the part of the physician and patient. From the experience of the leading genito-urinary specialists in this country and Europe, six months may be accepted as the average duration of the treatment of chronic gonorrhea, while in the experience of some of the reporters, about three per cent of the cases were incurable by any treatment whatever.[6]

As to the prognosis of syphilis: "It is essential that a luetic patient be kept under observation as long as he lives. It is difficult indeed to assert that a man is definitely cured. Possibly fifty years after a luetic has been treated, we may be able to make this assertion and then only, if in the meantime the patient has revealed no clinical or serological symptoms and if on autopsy no pathological lesions are revealed."[7]

This may seem an extreme and pessimistic view. Hazen states: "When a patient in the early stages of syphilis is thoroughly treated for eighteen months, and has a negative spinal fluid, the chances seem to be that he will have no further trouble, if he keeps himself under observation. He may, of course, require further treatment, but in the vast majority of instances this will be the most serious inconvenience that he will suffer."

Chancroid

Chancroid is a local lesion causing no sys-

temic infection or reaction and is caused by the streptobacillus of Ducrey. In the clinic, as a rule, chancroids outnumber true chancres two to one, for chancroid flourishes only where soap and water are not esteemed. They are treated locally by cleanliness, tincture of iodin, and canterization.

Erosive and Gangrenous Balanitis

Erosive and gangrenous balanitis is found in men with long, phimotic, dirty foreskins. Fusiform bacilli, spirochaetes and pyogenes, especially staphylococci, are constantly found in the purulent secretions. Brams states: "Salivary contact is not an essential predisposing factor but the infection may be due to organisms which are present, as saprophytes under normal conditions, and which have the power of becoming pathogenic when suitable conditions arise." Smears and cultures were made from the prepucial secretions of one hundred normal men and in fifty-one per cent of these cases the smears contained both spirochaetes and fusiform bacilli. The treatment of this disease is comparatively simple, when it is taken into consideration that the causative organisms are anaerobic. Palliative measures, such as soaking the penis in hot water or hot sitz baths, and irrigating the prepucial sac with hydrogen peroxide and potassium permanganate, usually suffice in early cases. In the more advanced cases it is best to make a dorsal slit and thoroughly cleanse the glans and prepuce so as to expose as much surface as possible to the air. Early recognition of this disease is of vast importance, on account of its highly destructive action on the tissues.

Herpes Progenitalis

This proves intractable at times and in some cases circumcision is necessary for a cure. Astringent powders and washes are used.

Granuloma Inguinale

This disease has received a great deal of attention in the literature in the last few months. We have had a few cases at the Venereal Clinic and I have had one atypical case in my office. All were in negroes, and most of the cases were typical with raised granulomatous ulcers in the groins or perineum, or both. "Lesions about the lips, mouth and neck" have also been reported.[8] We examine smears for Donovan's organism and, whether positive or not, if the ulceration looks suspicious we administer tartar emetic intravenously; we begin with 5 c.c. of a one per cent solution in 25 c.c. of distilled water, increasing in strength every two or three days until 12 c.c. in 25 c.c. of water is given. Surgical removal and the use of the Roentgen ray locally have been used by some and it is well to take into consideration that any of these cases may relapse and need further treatment.

Case History

A young negro man appeared in my office with an ulceration on head of penis, one in the corona, and one at the meatus. I examined for Donovan's bacillus, did a "dark field" for spirochaeta pallida and had a blood Wassermann made, all being negative. There was no urethral discharge, but shreds in both urines due to a previous attack of gonorrhea. He was treated locally and in a few days the right side of the head of the penis seemed to be a mass of pus and it felt as if you could pull it off. The patient had difficulty in urinating, the meatus practically closed by the ulcer, so I did a meatotomy and tried to establish drainage by putting a scalpel in through the meatus and bringing it out the right side of the head of the penis. The patient developed anuria and he had to be catheterized for several days. Two injections of tartar emetic caused entire healing of the lesion but, in using the catheters, an acute prostatitis was caused from an old gonorrhea. This, however, readily yielded to treatment. The only drugs used at this time for the sores were bichloride of mercury washes and tartar emetic. This is an example of some of the complications met with in venereal disease treatment.

References.

1. "Syphilis," Hazen, page 23.
2. "Modern Urology," Cabot, page 286.
3. "Genito-Urinary Diseases and Syphilis," Morton, page 222.
4. "Venereal Disease Information," Paul Bowers, page 83.
5. "Journal of Urology," Oct., 1923, T. V. Williamson.
6. "Genito-Urinary Diseases and Syphilis," Morton, page 221.
7. "American Journal of Syphilis," H. S. Bakatel, Vol. 7, No. 3, page 433.
8. "Journal of Dermatology and Syphilis," Gage, March, 1923, page 303.

322 *Dickson Building.*

A STUDY OF THREE HUNDRED SYPHILITICS.

By T. LATANE DRISCOLL, M. D., Richmond, Va.
Associate in Syphilology, Medical College of Virginia.

It would seem of interest, and some practical importance, to know the relativity of symptoms in syphilis, as by so doing a diagnosis could more readily be arrived at. Furthermore, this study is of interest as confirming more or less, the specificity of the Wassermann reaction in the State of Virginia, distantly removed from areas which have certain sub-tropical diseases which may give a four plus Wassermann reaction.

These cases, of which there were three hundred, had a positive Wassermann. As no clinical study was made until after the report from the laboratory, they represent the study of three hundred four plus Wassermann tests, rather than the above number of known syphilitics. It will be well to note that not one of the patients who had a positive Wassermann was clinically negative, although in our records were many clinically positive cases that were serologically negative.

In reviewing these histories I am at once struck with the fact that such a small number show symptoms characteristically syphilitic, and only by combining a group entity of vague symptoms could a diagnosis be positively made. In other words, this shows the great importance of serologic findings as an important link in the symptom-complex.

The following table shows the manifestations in order of incidence:

Manifestations	*Positive Findings*	*Per cent.*	*Plus*
1. Lymph nodes—Epitrochlear	228	76	
2. Inguinal	225	75	
3. Post cervical	207	69	
4. Headache, especially at night	163	54	"
5 Venereal sore, or scars	148	49	"
6. Joint or bone pains	123	41	"
7. Pains and stiffness in back or neck	117	39	"
8. Sore throat	106	35	"
9. Genitalia—Chancre, Condylomata	80	26	"
10. Syphilodermata	78	26	
11. Anemia	76	25	"
12. Axillary, Lymphadenitis	67	22	
13. Tender shins	53	17	"
14. Vascular System—Heart, especially aortic insufficiency and myocarditis	45	15	
15. Bones—Osteitis, Periosteitis, Perforations	43	14	
16. Mouth, Throat—Mucous patches	41	13	"
17. Hair—Alopecia	36	12	"
18. Miscarriages, still births, or infantile deaths first year in total of 100 females	26	26	
19. General appearance, especially undernourishment	20	6	"
20. Aural symptoms—Partial deafness	20	6	"
21. Gait—Spastic or ataxic	18	6	
22. Keratitis	12	4	
23. Digestive tract—Ulcer or gummata	11	3	"
24. Paralysis—general, or tabes well defined	10	3	"
25. Retinitis—Optic Atrophy	9	3	
26. Definite Psychoses	9	3	
27. Gummata cutaneous	9	3	
28. Definite liver involvement	9	3	
29. Jaundice present	6	2	
30. Iritis	6	2	
31. Choroiditis	6	2	
32. Finger nails	4	1	"
33. Respiratory tract—Gumma of nose and larynx	4	1	"
34. Lungs—Gummata	4	1	"

The question will naturally be asked why there are not a greater number of frank cases of syphilis which, as indicated, is only about twenty-five per cent. This answer to the author's mind constitutes the pre-eminent encouraging feature, that is, the public generally is alive to the fact that syphilis is a serious condition and needs early treatment, but they do as yet fail to persist in treatments until cured. Much of this information possessed by the public is due to Government and social agent activities.

The outstanding serious condition which is indicated is the involvement of the cardio-vascular system, showing about fifteen per cent.

Although no series of cases shows absolute constancy, yet we believe this report may be of some use, as indicating probabilities as to syphilitic manifestations.

Medical Arts Building.

THRUSH.

Report of an Unusual Case.

By SAMUEL NEWMAN, M. D., Danville, Virginia.

J. A., 9 years and 8 months old, presented himself for examination, July 18, 1924, with the following history:

Fifth full term, normal delivery, with average birth weight, in a family of six children. All the other children are living and well. The early development of J. A. was normal. Had whooping cough when two years old: measles when three: skin eruptions during infancy: and recurrent sore throat with occasional cervical gland involvement perhaps once during each year of life.

Present illness dates back since the child was

three years old, when he first had whitish patches on tongue and other parts of mouth. This condition caused a very sore mouth. It always came on during the months of January or February and after treatment it would partially disappear only to come back about the same time in the following year. This year the child had been suffering more severely from this condition. For the first time he had been troubled with a sore mouth also during the summer.

Parents of child are educated and sought relief since trouble first appeared. A diagnosis of stomatitis had been made in this case, without designating the underlying cause.

Examination showed a bright looking, very nervous and undernourished boy—ten per cent underweight for height in accordance with the Baldwin-Wood table. The boy presented the fatigue posture, winged scapulae, and enlarged and painful anterior cervical glands and left posterior cervical glands.

The child was spitting continuously, saliva dribbling from his mouth. The voice was muffled and indistinct. Temperature under axilla was 101. Examination of the mouth showed a cream colored gelatinous membrane covering the right two-thirds of the tongue, several areas on the hard palate, irregular spots on the inside of the cheeks, and the whole of the soft palate. The uvula looked ulcerated and bleeding. The tonsils were covered with a grayish dirty diphtheroid membrane, and the throat was filled with glary mucous. The part of the tongue not covered with this membrane looked very red and bathed in sanguinous fluid.

Examination of urine showed a trace of albumin. Examination by a dentist did not reveal any carious teeth or a gingivitis. A direct smear from the mouth showed various cocci and bacilli and the predominance of Oidium albicans (conidia and mycelia). Organisms of Vincent's angina were absent. Cultures showed a growth of staphylococcus albus.

The treatment consisted in a daily application of a ten per cent suspension of sulpharsphenamin in glycerin for three days; boric acid mouth wash; and quantitative nutrition. On July 26th, one week after the first visit, the child went home with a gain in weight of four and one-half pounds, the throat and mouth perfectly clean, and with only one patch on the tongue about the size of a nickel. August 2nd, seventeen days after first visit, child reported again. Mouth and throat were perfectly clean. Tonsils and pillars reddened, but no deposits of any kind. Cervical glands palpable, but not painful.

Comment

There are several points in connection with this case that make it rather unusual and worthwhile reporting.

A. *Age of the child.*—While thrush is a common disease of infancy it is rarely seen in children. Finkelstein[1] states, "Thrush is a characteristic disease of infancy; in older children it appears very seldom, and then only as an accompaniment of severe cachectic conditions, as in the case of the adult." Stockton[2] says, "Thrush seldom, if ever, appears in healthy individuals. In infancy trivial disorders may prepare the way, while in older children pneumonia, typhoid fever, and the exanthemata are the predisposing causes."

B. *Predisposing cause.*—The organism of thrush (Oidium albicans) is a *nosoparasite*, that is, it never produces disease by itself. The ground must always be prepared for it by a stomatitis, from whatever cause, or by a cachectic condition. In older children the cachetic condition must be truly grave in order to allow the implantation of thrush. In the examination of thousands of malnourished and tubercular children in Eastern and Central Europe we did not see a single case of thrush. In an analysis of the records of physical examination of 12,000 war orphans by trained pediatrists, not a single case of thrush is recorded.

Fischl[3] states that Moro reported a case of primary implantation of thrush on the tonsils of a child and described it as a case of soordiphtheroid (soor. German for thrush). Fischl states that he has also seen several cases of primary implantation of thrush on the tonsils.

In our case the undernourished condition of the child cannot be considered as a satisfactory predisposing cause to the persistence of such a severe case of thrush. It is noteworthy that the child did not begin to suffer from it before he reached the age of three. The probabilities are that we had to deal here with a case of primary implantation of thrush on the tonsils, from which it spread to other parts of the mouth.

The clearing up of the condition is attributed more to the quantitative nutrition rather than to the local measures.

BIBLIOGRAPHY.

1. Finkelstein, Diseases of Infancy, 2nd ed., p. 651. Berlin.
2. Modern Medicine, Osler & McCrae, Vol. III., p. 50.
3. Pediatrics, Pfaundler & Schlossmann, 3rd ed., Vol. III., p. 24. Leipzig.

Arcade Building.

RADIUM, X-RAY AND SURGERY.

By SAMUEL ORR BLACK, A. B., M. D., F. A. C. S.,
and
PAUL BLACK, Roentenologist,
The Mary Black Clinic, Spartanburg, S. C.

That radium has wonderful therapeutic properties is now accepted by all.

There are many cases in which it acts almost as a specific. Many lesions when subjected to its action disappear as if by magic. Oftentimes, it alone is all that is needed to remove a malignant sore; again, it must be used in conjunction with surgery or X-ray.

Around the eyelids or on the face we use radium almost exclusively. For carcinoma of the jaw, we first cauterize and then insert a radium pack. The combined treatment here surpasses either when used alone. There are other localities in which we use it in conjunction with surgery or with the X-ray, or with both, for example, carcinoma of the breast and carcinoma of the cervix.

For superficial lesions around the eyelid, on the nose, on the face, or in the temporal regions, we usually apply 50 mg. of radium in a brass capsule or lead screen for from three to six hours at a time. This dose is repeated from the fourth to sixth day for three or four applications, depending upon the age of the patient and the extent of the lesion itself. In the great majority of lesions such as these, this treatment suffices. For two to three months these cases are re-examined, and, if deemed advisable, further radiation is given. In lesions of this sort we have practically discontinued surgery as the radium results are extremely satisfactory.

Tumors of the parotid gland are treated by burying radium needles in the substance of the tumor itself. At alternate periods deep X-ray therapy is given. The radium needles are buried once weekly, and three days later the tumor is again exposed to radium by applying 100 mg. needle over each half for period of four hours, with one-half inch wooden block intervening between skin and radium. Once every two weeks while this is taking place, the area is treated for twenty minutes with Roentgen ray, nine inch gap, ½ m.m. copper filter and sole leather, twelve inches skin distance for three to four doses. With such a technique we have caused a definite and in two cases very marked diminution in the size of the mass. In no case have we succeeded in eradicating it. After this initial treatment we then treat them symptomatically and at intervals sufficiently to keep their size the same, or as nearly so as possible.

In treating malignant jaws we extract the adjacent tooth, or teeth, under general anaesthesia, and cauterize the entire area most thoroughly with an old fashioned soldering iron. A radium pack of 75 to 150 mg. of the radium salt is then inserted for a period of eight to fourteen hours and repeated once every four to six days for three or four treatments. In addition, X-ray exposures to the neck are made subsequently. We do not do block dissections as frequently as formerly.

Carcinoma of the tongue is very resistant to radium, as it is to other forms of treatment. Fortunately, however, it is easily preventable, and ere very long should be a surgical curiosity. Capillary tubes containing minute quantities of radium emanation buried and left in the substance of the cancer itself perhaps give as good results as any other form of treatment.

At present, we are treating breast carcinoma by surgery combined with radium, and followed by X-ray.

We have not found that X-ray, previous to the operation, has been of any decided benefit. On the other hand, we have thought that it produced exaggerated oozing and loss of blood.

Prior to closing the wound, we apply 100 mg. radium in brass capsule contained in end of rubber tube into axilla and leave *in situ* for twelve hours. We then pull the tube outwards for a distance of two inches and leave again for twelve hours, following which the radium is removed from the wound.

Seven to ten days after the operative wound has thoroughly healed we begin X-ray treatment. This consists of 135 Peak kilovolts, 6 m.m. aluminum, sixteen inches skin distance for forty-five minutes for the first and forty minutes for the other treatments.

The chest wall is divided into eight areas and two areas are treated daily, unless nausea

necessitates alternating days, until all eight areas have been subjected to the rays.

Within three weeks this series is repeated and at the end of a second similar period it is again given. As a rule, this suffices; but should a localized recurrence take place, we extirpate it at once. We have seen one case operated upon for localized recurrence five times, over a period of several years.

There is perhaps no other place in the entire body where a carcinoma so far advanced can be retarded in its destructive process so quickly by radium as cancer of the cervix. We have practically discontinued the use of surgery for carcinoma of the cervix and now use radium, supplemented by the roentgen ray.

As a general rule, a 100 mg. capsule of radium is placed against the cervix, or else radium needles are inserted into the substance of the lesion and left for from ten to fourteen hours. This dose is repeated every four days for three to four treatments. After two months another series is given if deemed necessary.

Between the first and second treatments, however, we give an X-ray exposure, e. g. 5 M. A., nine and one-half inch spark gap, 6 m.m. aluminum, for twenty minutes over the sacral region. This tends to check the loss of blood very quickly.

The Roentgen treatment is continued once weekly for three to four treatments, depending upon the condition of the patient, the extent of the lesion, the degree of anemia, and the severity of the reaction manifested by the patient. Frequently the X-ray, when given in such dosage, causes a definite nausea followed at times by vomiting, but radium rarely produces such a reaction.

In the same way that some people blister more easily under the sun's rays, some people react more severely to the rays of radium and the Roentgen ray. Each individual, therefore, necessitates very careful dosing, and this holds true no matter where the lesion. It is wise to explain thoroughly and candidly that each treatment might possibly burn or blister, but that if it does the chance is better of more permanently destroying the lesion. Of the last fifty-five consecutive cervical cancers treated as outlined above, we have secured at least a marked temporary benefit.

We have never seen a case of cancer of the cervix, excepting a few moribund ones, where the symptoms have not been lessened for a time at least. The hemorrhage ceases, the pain and discharge lessen, douches keep the parts clean, the odor disappears, and the patient feels generally improved. In such a case when death does occur, it is often from a metastatic lesion deeply placed and not from the local lesion in the uterus itself.

Though radium is not an absolute cure for cancer, yet it does have a field of distinct usefulness, and when intelligently used it can be of immeasurable benefit to many patients, either alone or in conjunction with surgery or X-ray.

This is given as a fairly accurate account of the way in which certain types of cancer are being treated at the present time in the Mary Black Clinic.

362 *East Main Street.*

CHRONIC CONFUSIONAL STATES SIMULATING DEMENTIA PRAECOX. DIFFERENTIAL DIAGNOSIS.

By ALFRED GORDON, M. D., Philadelphia, Pa.

The problem of dementia praecox is still a matter of considerable hesitation and diagnostic difficulty in a number of instances. The presence of certain symptoms which are encountered in other mental affections, and especially their persistence, render the diagnosis and consequently the prognosis quite uncertain and embarrassing. Among the psychoses with which dementia praecox may be confounded, confusional states of long duration are particularly liable to mislead. Literature is abundant with examples which were fomerly described as cases of confusional insanity, but which were proven to be genuine examples of dementia in accordance with Kraepelin's conception. We also meet with examples labeled as cases of dementia praecox, but which present all the elements of a chronic confusional condition and which eventually make a complete recovery.

Within the last several years the writer had the opportunity of studying seven such cases and of keeping them under his uninterrupted observation. Before discussing the differential diagnosis, the salient features of each of the cases are presented here for consideration.

Case I.—M. S., female, 30 years old, during convalescence from attack of acute lobar pneumonia of an unusually severe character and of long duration, suddenly commenced to show slight disorientation in time. Soon a state of agitation set in. Delusive ideas of a mild per-

secutory character directed towards her relatives made their appearance. With the exception of occasional auditory hallucinations, the above condition remained unaltered for a period of three months. Gradually the psychotic symptoms became more and more intense and delusions of the paranoid type came into evidence. Curiously enough, the delusive ideas would at times be totally absent; at other times *a propos* of the least excitement they would reappear. During that period the disorientation remained and amnesia became prominent. At times she would forget facts which occurred only two or three hours previously. However, questioned on the same subject at another time, the amnesia would not be present. The patient was largely confused. Each question propounded to her would arouse astonishment and surprise. Sometimes she would become resistive in talking, and acting. On two occasions she became catatonic, and each catatonic state lasted from three to eleven days. Throughout her entire mental illness, which lasted six months, the confusional state and the disorientation never totally disappeared, but all other penomena were episodic in character: they would disappear and reappear. Eventually the patient made a complete recovery.

Case II.—A. S., male, 23 years of age, recovered from an attack of typhoid fever. While he was convalescing, a mild delirious state developed. After that he gradually became more and more confused and amnesic. His attentive faculty became defective; when spoken to, he behaved as if he did not understand what was said, but as if he were absorbed in some other subject foreign to the question asked. At times he would make a reply in a very irrelevant manner. When reminded of the absurdity of the situation, he would make efforts to correct himself and occasionally succeeded. When asked to carry out an act, he would at times do something else and at others he would endeavor to execute it correctly, but only when urged, constantly reminded and encouraged. This psychotic state continued with great variations in intensity during a period of four months. He soon became apathetic and indolent. At that time he developed a stuporous state in which he became totally mute. He had to be fed; he could not take care of himself. The stupor lasted only ten days, after which period the former confusional and disoriented states returned in their totality. This mental condition fluctuated in its intensity. The patient soon developed a short period of automatism, which became substituted by an equally brief period of negativism. During the following two months he showed at different times hostile reactions with regard to his parents, but they were all of brief duration. During the entire illness, which lasted thirteen months, the clinical picture suggested strongly the diagnosis of dementia praecox, but the outstanding feature concerning the shortness of the superimposed manifestations, also the variability in the intensity of the basic elements of his affection, namely the incoherence and confusion, made me hesitate in accepting the definite view of Kraepelin's disease. Further events justified this cautious attitude. Complete recovery followed.

Case III.—D. T., female, 26 years of age, primipara, had a very difficult and protracted labor. She was confined to bed eight weeks in a state of extreme exhaustion. Rapidly she began to show signs of incoherence in speaking, of disorientation in time and of a mild confusion. For weeks she remained in the same mental state, with the exception of an occasional hallucinatory attack. She soon became much agitated, could not sleep, would talk to herself, could not take care of herself, became extremely inattentive to her sphincters. All these symptoms varied in their intensity and frequency. Some days the confusion and agitation would be extreme, other days extremely mild, so that the patient could carry out orders. There was also a certain amount of amnesia which, like the rest, was variable and ran parallel with the confusional state. The patient soon became negativistic: she refused to answer questions, to execute the simplest acts. Her attitude became stereotyped in every direction. Her indifference to surroundings became more and more marked. The negativism and stereotypy disappeared at the end of ten days. Apathy and indolence became pronounced. The confusion, lack of attention remained as formerly. The picture of the disease was so far that of hebephrenia with this difference, however, that with the exception of the confusional state all other symptoms were of a transient character. The diagnosis was hesitating for many weeks and months. The patient made a complete recovery at the end of 18 months.

Case IV.—K. J., female, single, 23 years

old, after a prolonged period of preparation for a college entrance, in which she failed, developed a mild confusional state. Insomnia, slight agitation, with an impatient attitude towards her sisters, were also present. Gradually all these symptoms became more and more pronounced. Soon vague persecutory ideas made their appearance. She became very incoherent, listless and apathetic. Catatonic manifestations at one time, stereotyped behavior later followed. All these symptoms were not continuous. They would appear, disappear and reappear. Their intensity also varied in each attack. At times they would be very brief (only of a few hours' duration), at others quite prolonged (of several days' duration). While this fluctuation was in evidence, the confusional element remained present through the entire course of the psychosis. Self-criticism was lacking, the speech was absurd, although at times her replies to questions were correct. She always preserved her astonished, surprised and perplexed expression of the face. The defective attentive power, the defective orientation and adaptation were predominating in spite of the superimposed transient hebephrenic incidents. At the time when the latter were present, the clinical picture was strongly in favor of dementia praecox. The patient made a complete recovery.

Case V.—J. L., male, 27 years years old, after vain search for work, finally obtained a position in a leather factory where he was compelled to do heavy physical labor. Being unaccumstomed to such work he soon began to feel unusual fatigue at the end of the day. For several weeks he tried to hold on to the position, but finally he commenced to feel the effects of it. Insomnia, asthenia, agitation, impatience and irritability made their appearance first. He had to go to bed. He soon became apathetic and incoherent. He would talk to himself in the most unintelligible manner. He became confused, presented the characteristic want of attentive power. The memory became defective especially for recent events. There was poverty of judgment and of criticism. Hostility and aggressiveness would be present occasionally, but only for a few hours at the time. On many occasions he showed a negativistic and resistive attitude: refused to answer or to carry out the simplest order. At times his behavior was stereotyped. He also masturbated violently. It is to be noted, however, that all these psychotic manifestations through the entire course of the disease which lasted three years were only episodic and their duration ranged from a few hours to seven days as maximum. The disorientation, confusion and the defective attentive power were never absent at any time. However, there were considerable fluctuation and variability in their intensity, but their conspicuousness was predominant. Complete recovery followed.

Case VI.—M. S., female, 21 years old, hemophilic, had frequent hematemesis and epistaxis during a period of three years. The last hemorrhage was exceptionally profuse. Thromboplastin was used intramuscularly. On the day following the arrest of the hemorrhage, she became restless, anxious, and a few days later disoriented and confused. Her memory became faulty. She was depressed and often found in tears. Soon she became delusive, claiming she was magnetized by her older sister towards whom she became very hostile. The enmity was based on the assumption that the sister was more favored by the parents than she. On one occasion she attacked her sister with unusual violence. After this episode her attitude changed. She became unusually quiet and more confused than heretofore. She then became negativistic and resistive. When spoken to, not one word could be obtained from her; but when not addressed she would speak to herself, although unintelligibly. She sat in one place of the room, had her head wrapped up with a muffler and ran away when she was approached. On two occasions she was catatonic during six to eight days. Stereotyped behavior also occurred on several occasions. At that period of her affliction the former delusive ideas had totally disappeared. The above symptoms, characteristic of dementia praecox, were all transient although some of them lasted sufficiently long to warrant this diagnosis. The further development of events proved that they were only episodic, but the fundamental basic condition was confusion with all its special features. It varied in its intensity and degree. Nevertheless it was persistent and characteristic throughout the entire course which lasted two and a half years. Recovery was complete.

Case VII.—R. S., male, 24 years of age, while recovering from a protracted bronchopneumonia, for which he was bedridden fifty-two days, commenced to show signs of incoherent speech and mild confusion with disorientation. Towards evening he would be

slightly delirious. His sleep was poor. He was restless the largest part of twenty-four hours. Amnesia was marked. Illusions of identity became quite conspicuous: he would frequently not recognize his parents and sisters and would see in strangers his relatives. Soon the agitation and restlessness became replaced by depression. On two occasions during this phase he had two periods of a stuporous state each lasting several days. Two months later he developed negativism and automatism. This episode lasted five weeks. After an interval of two months during which the former confusional state with its typical features was present, he developed a catatonic condition which lasted six days. The diagnosis was strongly in favor of dementia praecox during the phases of dementia-episodes, but their ephemeral character, their appearance and disappearance, their brief duration, finally the persistence of the confusion, of weakness of the attentive power, the mode of reaction to external stimuli, and the characteristic unsystematized, intellectual functions, the nature of the onset and termination of the affection, all these features led to the diagnosis of a chronic confusional psychosis. The disease lasted two years and the recovery was complete.

The course of events as they occurred in the present series demonstrate the fact that at least in some cases only a prolonged observation and a close scrutiny of the psychotic manifestations, especially their intensity, their depth, their relation to the patient's behavior, also, more particularly, the disproportion between the disturbances in the affective and intellectual spheres—all these characteristics will enable one to make a differential diagnosis.

Through the largest period of the course of the psychotic states their resemblance to those of dementia praecox was, grossly speaking, so in evidence that, in the eyes of several psychiatrists who happened to examine some of the cases once or twice, the diagnosis of Kraepelin's disease appeared beyond any doubt, and as such a most unfavorable prognosis was given. In all such cases the duration of the disorder should especially be taken into consideration and an opinion thus formed.

Let us see now what those special features are that led to erroneous diagnoses. Also let us consider the distinguishing characteristics that may on first thought be referred to either of the affections under discussion.

One of the most striking manifestations in all the cases was the reaction of the patients to external stimuli, especially when questions were put to them: either no reply at all was obtained (mutism), or else the reply was irrelevant and had no relation whatsoever to the subject of interrogation. Sometimes the patients kept on conversing with themselves as if continuing the discussion of subjects which they commenced sometime ago. Some of the patients had facial expression as of perplexity, surprise, astonishment, as if they understood the questions poorly.

It is evident that their attention is laborious. They apparently try to understand the words spoken; and whatever they may say is spoken slowly and hesitatingly. They sometimes lose all notion of time and space. They are disoriented in every direction, in some instances to the extent of forgetting their own names (auto-psychic disorientation of Wernicke). Such an attitude on the part of the patients was noticed not only in the early phases of their psychotic states, but throughout the entire course of their affection. If one compares them in this particular respect with praecox patients, the difference is striking. The latter will respond to stimulation or to questions, although they show at the same time a more or less considerable amount of incoherence. The praecox patient listens and replies in accordance with the slight means at his command. In confusional states the patient's attentive power is extremely weak, the outer world is closed to him. Because his horizon is extremely narrow, he is absorbed in contemplation of his own disturbances. As to ideas and thoughts, they arise and make their appearance in dementia praecox, either in response to the will of the patient himslf or to that of another person; but in confusional states there is no such relationship.

The praecox individuals present a striking characteristic of their mnemonic faculties in that their amnesia is progressive and extends from recent to the most remote events. In confusional psychosis the amnesia is not progressive, but variable. An examination in this respect on different days will reveal the fact that in confusion certain facts will be recalled by the patient and they will be correct in all the essentials. In praecox the loss of memory is definite and final; the amnesia is global.

In carrying out an order or a command the praecox will obediently make an attempt, but his work will be defective. In confusion, on

the contrary, the execution of the order will be correct, but the patient must be constantly reminded and encouraged during the progress of his attempts.

The fundamental mental basis, although variable and changeable, is nevertheless normal in confusion, but the defect lies in the mode of its functionating because the latter is very slow. In dementia praecox the intellectual basic condition is very poor and even if its functionating is practically normal, the results are bad, because a praecox has a global amnesia.

The onset of the mental disorder is also different in each of the two affections. A confusional state usually commences more or less abruptly, its course is rapid, agitation is present and the termination is usually favorable. A praecox commences his or her disorder slowly and continues as a rule the slow progress; otherwise speaking his affection is chronic from the very beginning; there is no agitation and the termination is unfavorable.

The cases described above tend to prove that in all cases the differential diagnosis is not easy or clear cut. In many instances the distinction is most delicate. Should confusion present some slight features of dementia, how can one determine which of the symptoms belong to one or to the other, especially in view of the fact that the dement presents sometimes confusional episodic manifestations? Moreover, a confusional state runs sometimes a progressive course towards dementia. How then to ascertain the degree of transitory suspension of mental operations and the degree of a threatening final suspension?

The patients of the present study all presented some of the symptoms of praecox individuals, but in a very mild degree, although sufficiently conspicuous to suspect dementia. Those symptoms consisted of incoherence, of poverty of judgment, of deficiency in recalling events, of absence of self-criticism, the presence of mental enfeeblement, the presence of catatonic manifestations. With the exception of the latter all the other symptoms, on the other hand, presented considerable variability, changing in intensity every few days, and sometimes every other day. As to catatonia, which at one time Kraepelin viewed as characteristic exclusively of dementia praecox, it is met with in many other affections, especially in confusional psychosis. But what was particularly striking in the cases of our series was the persistent disorientation which was highly conspicuous through the entire course of the patient's condition. The apparent enfeeblement of intellect is only transient (what justified some authors to call it acute dementia). Although it may become chronic, it does not change its special characteristics. In dementia praecox there is practically speaking, no diminution of intellectual power for a long period of time. In confusion there is only torpitude, but in dementia praecox there is inertia.

Should a praecox develop a confusional state, which sometimes may occur, the diagnostic difficulties will increase. We find there the fundamental characteristics of dementia, namely, a marked diminution of the field of cerebration, definite and stable feebleness of judgment, persistent amnesia, total absence of power of criticism, and, especially, persistence of totality of all these symptoms. To them is added disorientation and unusually apathetic attitude, but while the superimposed disorder presents the characteristic variability of confusion, the former show persistence and total lack of variability. Two cases of our series showed an unusual resemblance to hebephrenia with the characteristic stereotypy in many directions of the latter. They nevertheless ended in complete recovery. They commenced with confusional states following attacks of typhoid fever.

The mixed cases of course present considerable difficulty in many instances, but repeated examinations and prolonged observation are indispensable for their proper discrimination and appreciation. In all such cases one may bear in mind also the following differentiating peculiarities:

A confusional individual may after persistent efforts correct his attitude of surprise or astonishment. If he is not in a state of agitation he looks very ill and is usually bedridden. A praecox has not such an appearance. When the confusional element is intense and there is also a stuporous state, the mental energies are in a state of suspension. This is the so-called acute dementia referred to above. The difficulty of differentiating it from dementia praecox may be considerable, especially since the physical signs usually present are observed in both affections.

The same remarks may be made concerning a confusional state associated with delusional features. In almost every instance a careful

search will reveal the incoherent and confusional impress in the delusional conceptions. Sometimes confusion assumes an agitated form; the words uttered by the patient and the sentences are void of all meaning when put together; the patient's gestures are equally incoherent; he is restless and impulsive. In all such cases the diagnosis from dementia praecox may be difficult. But again the entire history of a case must be taken into consideration and each individual symptom must be analyzed and scrutinized repeatedly and for a prolonged period of time.

The presence or absence of fever, of albuminuria, the course and the etiological data will frequently assist in elucidating the diagnosis of the two affections. In the anamnesis of the cases of the present study we find infectious processes at the conclusion of which the confusional state developed. We find here also instances of confusion following protracted labor, hemorrhages, excessive and uninterrupted mental or physical effort lasting a long period of time. All such cases could be classified as examples of primary mental confusion or exhaustion psychosis, running a chronic course.

To sum up the essential features of the two psychoses studied and observed for a prolonged period on the series of cases of the present essay, the following differential points should be emphasized: First of all, what is frequently considered dementia praecox because of the impossibility of the individual to judge correctly and because of defective memory, and automatic attitudes, all of which make one suspect a profound and incurable invasion of mental faculties—is often only a confusional psychosis.

The speech in both cases is absurd to the same extent, but the difference lies in the fact that ordinarily the confusional is sometimes capable to give correct answers, but not so is the case of the praecox. The essential characteristic in dementia praecox lies primarily in a profound invasion of feelings, of emotions, of tendencies even in their most superficial relationship. The incoherence which is evident in the affectivity may even lead to its total suspension. There is, so to speak, a discord in the affect, which later on is gradually substituted by a continuous apathetic state. In this phase of the affection the attentive faculty which at first was irregular and capricious, gradually disappears and a total loss of interest takes its place. As to the intellectual functions there is a distinct deficit, especially in requirements of a high order, such as generalization, etc., and there is a deficit in the mutual relationship between the intellectual and affective functions. In confusional psychosis the disorder lies chiefly in the attentive faculty, in addition to the unsystematized intellectual functions. A state of defective adaptation, orientation and determination is predominant in this affection.

In order to arrive at a positive diagnostic opinion, in order to estimate correctly the mental status of a confusional or of a praecox individual, one must determine the degree of the power of appreciation of their own condition and of that of the surrounding. One must also investigate the causes which brought about the lack of power of appreciation, or of self-criticism. Finally the degree and the genuineness of the intellectual deficit should not be overlooked.

1812 *Spruce Street.*

HODGKIN'S DISEASE—REPORT OF A CASE.*

By A. A. WILSON, B. A., M. D., Oxford, N. C.

Despite a volume of literature and much profound research on the subject ever since the publication, in 1832, of a paper by Hodgkin himself, "On Some Morbid Appearances of the Absorbent Glands and the Spleen," only a fragmentary definition of Hodgkin's disease is possible at the present time. And if we are to get any clear understanding of the disease, a survey of its history must be made. Such a survey is valuable and instructive because of the light it throws upon a complicated field of generalized lymph-node enlargements.

In his original paper Hodgkin described seven cases, but in the light of our present knowledge of lymphadenopathies, it is very doubtful whether or not a majority of these cases were clinically similar but histologically dis-similar from the generally accepted present conception of the disease. Virchow, in 1845, separated from the large group of lymphadenopathies, one with characteristic changes in the blood—lymphatic leukemia.

Many synonymous terms soon sprang up and each author coined a term to fit his variation from the generalized field of the disease. We still have a multiplicity of synonyms which

*Read at a meeting of Granville County Medical Society at Brantwood Hospital, Oxford, N. C., March 2, 1924.

are ill-defined often and very confusing, such as a "psuedo-leukemia" of Cohnheim, Bilroth's "malignant lymphoma," Langhan's "malignant lymphosarcoma," the "recurrent glandular fever" of Pel-Ebstein and Strumpell's "splenic anemia," etc.

Intensive histopathological studies have been made and the consensus of opinion labels it "an infectious granuloma due to a specific organism." A great many organisms of various types, at one time or another, have been regarded as specific mycotic agents, but no one organism has been uniformly found, none to fulfil Koch's postulates—so it would seem that the many organisms, such as Bacillus Hodgkinis, B. Subtilis, the spirochaeta, the Diphtheroid Bacilli, and others which have been found associated, may be regarded as secondary invaders, having found a favorable soil for growth, since immunological reactions have failed to confirm the specificity of the organism. So we are as far from the solution of the problem as we were before the bacteriological era.

Young adult and middle aged men, of robust constitution, whether rich or poor, seem more predisposed to the disease than women in the ratio of three to one. The disease is found sporadically all over the world, and heredity seems to play no part.

Clinically, the majority of cases run a typical course, characterized by a slow, painless, progressive enlargement of the lymphatic nodes of the body, beginning with those of the cervical chain, which seems to lend much support to the theory that the disease begins from an infectious origin—teeth or tonsils. The generally symptomless period of the early lymph-node hyperplasia gradually goes over into a second phase, during which the adenopathy becomes more or less universal, other organs, spleen, liver, etc., become involved and anemia and cachexia supervene. However, all cases do not run true to form, for one sees cases where the onset is stormy, with a rapid involvement of the other nodes plus the ordinary late general manifestations. In other cases there is, from the first, a more or less general lymphatic hyperplasia, or pressure symptoms from deeper glandular structures may come first.

The course is variable, depending on the virulence of the infection, and, in part, upon the resistance of the individual. From a little less than a year to a litttle more than a year may be called the average duration. Where pressure phenomena predominate, the course is different, depending on the structures encroached upon. After the primary nodes become enlarged, the progress to the other nodes is more or less orderly and progressive—but may be stormy and disorderly to other groups, corresponding to no rule of lymphatic metastasis. In the generalized stage, irregular fever is usually present, due to the infection or its toxins. Diarrhoea, pruritus and pigmentation of skin are commonly found.

The hematological picture of Hodgkin's disease is fairly uniform. The red cells are usually reduced in number—from 2 to 4,000,000 per cu. mm. with the hemoglobin reduced proportionately. In other words, the anemia is always of a secondary type. The total leucocyte count may be subnormal, normal or slightly increased, perhaps to 25,000 per cu. mm. with a more or less normal differential count. An eosinophilia is of some diagnostic import. The final and, in some cases, the only diagnostic criterion is the microscopical examination of the excised lymph-node.

The field of differential diagnosis is a wide one at first glance, and one must consider three phases of study. First, the granulomatous (syphilis and tuberculosis) the leukemic (myelogenous and lymphatic), the malignant—which exhibit local or generalized lymphadenopathies, with splenic tumor, progressive anemia and cachexia and which together form that large group of lymphomatoses from which Hodgkin's disease has finally been separated. Second, those diseases which simulate the various specially localized forms of Hodgkin's disease—such as typhoidal, mediastinal, osteoperiosteal, etc. Third, a few other conditions which, by reason of their recurrent or remittent febrile types, suggest endocarditis, malaria, etc. The field is greatly reduced, however, when one pays careful attention to the patient's history, both past and present, together with careful physical and laboratory examinations. The Wassermann should be made. The total leucocyte count together with a study of the stained smear to eliminate lymphoid and myelogenous leukemia, and, perhaps, a frozen section from the excised lymph gland will be necessary.

As to treatment—the hope of a permanent cure of Hodgkin's disease is practically nil, but there is a well-defined therapeutic regime, consisting essentially of arsenic, X-ray and radium and the employment of symptomatic

measures as indicated. Of all the arsenicals which have been employed, none surpasses Fowler's Solution in efficacy of treatment. X-ray and radium usually produce a prompt diminution in the size, or even a disappearance of the glandular enlargement. It is likely to be followed from time to time by recurrences, but the patient's life is lengthened and made more comfortable by their employment. A permanent cure is unlikely, however, because it is impossible to inhibit permanently the formation of new lymphoid tissue, or to destroy absolutely the active granulation tissue of the disease itself without injury to the normal structures. Surgical intervention is not only useless, but is harmful.

The case which I wish to present is, I am quite sure, more or less familiar to you all:

Mr. J. A. H., white, married, 72 years old, native North Carolinian, was first seen September 5, 1923. His chief complaint, aside from the appearances of the unsightly enlargements on sides of his neck and some mechanical discomfort and limitation of movements of head, was a slight weakness which had come upon him gradually in the last few weeks, making him unable now to do his light farm work which he had previously been able to do without this weakness.

Family history was uneventful. Mother lived to be 70 years old. Father died, age 45, of smallpox. No history of similar glandular enlargements, cancer, tuberculosis, diabetes, gout or serious mental or nervous disorders in family. Past history is excellent with no symptoms of any significance referable to cardio-respiratory, gastro-intestinal, genito-urinary or central nervous systems.

Patient's present illness began 13 months ago, at which time he noticed a small "bump," as he expressed it, in left side of neck, which he attributed to an adenitis resulting from some bad tooth or teeth. The lump, he stated, was hard, freely movable, and not tender. He went to a dentist who, after X-ray, pronounced his teeth on that side good. The nodule continued to grow, gradually spreading, until soon several were noted on that side; and about 3 months later, similar enlargements were noticed on the other side of neck; and a few months later still, hard, freely movable and non-painful enlargements were noted in the axillae, groin, popliteal spaces, etc. The growth was rather rapid and generalized.

It was at this stage that patient sought advice. Physical examination revealed a much younger looking man than he really was. He had a generalized glandular enlargement. The nodules on the sides of the neck could be seen from across the street. Everywhere glandular structures could be palpated—hard, movable, non-painful. The largest glands were in left axilla, about the size of a lemon. The spleen and liver could not be palpated. The skin was bronzed and very dry, with many irregularly shaped, more or less oval, perfectly white splotches, distributed over back, abdomen and chest.

Laboratory Findings:—Wassermann, negative; blood pressure 145/80. Urine showed a trace of albumen and rare, plain hyaline casts. Blood picture: Hemoglobin sixty per cent (Sahli), red blood corpuscles 3,630,000 per cu. mm.; leucocytes 8,600, of which forty-six per cent were polymorphonuclears, fifty-one per cent lymphocytes, two per cent large mononuclear leucocytes, one per cent eosinophiles. There was a moderately severe achromia. No variations in size or shape of red cells, no nucleated reds and no malarial parasites were seen.

Patient was referred to Dr. A. L. Gray for X-ray treatment and Dr. Vander Hoof for clinic at the Medical College of Virginia. X-ray failed to show any mediastinal involvement.

Treatment: Patient was given (on successive days in first week in October by Dr. Tabb) massive doses of X-ray, over eleven different sites. These were repeated second week in November, and again early in January. During treatment leucocyte count reached its high water mark of 18,000.

From the very first the improvement was marked and rapid, and at this date the patient's appearances are perfectly normal to inspection and he states that he feels stronger than at any time in recent years. Pea-like glands are palpable in cervical regions now. His largest gland, in left axilla, formerly the size of a lemon, now appears to be the size of a medium-sized pecan. In many other regions they are not palpable. The trace of albumen has disappeared from the urine. No casts are now seen. Hemoglobin seventy per cent (Sahli), red blood corpuscles 4,700,000 cu. mm., white blood corpuscles 8,000, and differential count is now normal.

While a cure, as stated above, is not claimed or anticipated, the improvement in the patient's

general condition has been very marked and the glandular enlargements have for the most part disappeared. It is probable, however, that there will be flare-ups from time to time and that further X-ray therapy will be indicated.

A SATISFACTORY TECHNIQUE FOR LOCAL ANESTHESIA IN CYSTOSCOPY.*

By LINWOOD D. KEYSER, M. D., Roanoke, Va.

Present methods of local anesthesia in cystoscopy are not altogether satisfactory. This is shown by the mental reaction of hypersensitive patients or of those with inflamed bladders or urethrae when a repetition of such treatment is suggested.

Alypin solution in five per cent strength, alypin tablets, benzyl alcohol, cocaine and novocaine are the agents usually employed. Aside from the alypin tablet which is deposited in the posterior urethra, these anesthetics are usually applied by a through and through urethral injection, and, as is often the case, much of the fluid escapes and fails to pass the external urethral sphincter in any considerable amount. Cocaine in one per cent or two per cent strength and novocaine in two per cent to four per cent strength have been most popular, but all too frequently, even in the hands of the most gentle urologist, we encounter cases where the process of cystoscopy and its accessory manipulations become a trying ordeal for the patient. Occasionally toxic symptoms of marked degree follow the use of cocaine and for this reason we are reluctant to use stronger solutions of the drug. During the past few years the epidural injection of novocaine through the sacral hiatus in strength of two per cent has been applied with excellent results, the nerves of the sacral plexus being blocked and a state of total anesthesia in the bladder, prostate, urethra, and sphincteric regions being produced. However, the time required for the induction of sacral anesthesia is usually one-half to three-quarters of an hour, the patients frequently complain severely of the after pain in the sacral region, and the method is not without some danger from the standpoint of systemic novocaine reaction.

During the past year the following technique has been developed in my hands and at the present time seems to fill the need for a purely local anesthetic to the urethro-vesical mucosa when the total desensitization of sacral anesthesia or of gas or ether is felt unnecessary.

The patient having been made to void is catheterized with a soft rubber catheter and the residual urine is determined, the bladder being completely emptied. One ounce of a ten per cent (10%) solution of novocaine (freshly prepared) is introduced into the bladder through the catheter. As the catheter is being withdrawn, a further amount of the same solution is injected along the posterior and anterior urethra. About one-fourth of one ounce of solution is required. A small pledget of cotton impregnated with ten per cent cocaine solution is placed in the fossa navicularis to anesthetize the meatal region. Thus the mucous membrane of the trigone, sphincter, and entire urethra are definitely immersed with a strong anesthetizing agent. Ten to fifteen minutes are allowed to elapse before the introduction of the cystoscope.

This procedure has been carried out during the past few months in some twenty-five cases as above outlined. The anesthesia in all but two cases was almost perfect, no pain or at most a slight feeling of discomfort being complained of during the manipulations. In regard to the two cases where anesthesia was not altogether satisfactory, one was a woman on whom cystoscopy was done by the Kelly method in the knee chest posture for urethral stricture. The patient complained of slight pain until the dilating wax bulb engaged the meatus and passed into the lower ureter, when considerable discomfort was produced. The second case was a man who had scarred posterior urethra with much induration as the result of an old periurethral abscess for which an external urethrotomy had been done about a year before. In this instance the passage of the rubber catheter had been impossible because of irregularity of the posterior urethra. As we did not wish to add further trauma at the time of cystoscopy by the passage of a stiff web catheter (which had been done previously for bladder irrigation), we decided to rely upon through and through injection of the solution via the anterior urethra. Probably little or none of the solution reached the trigone or sphincteric regions.

I mention the trigone and sphincteric regions because these are the points subject to most irritation during the cystoscopic procedure.

*Read before the meeting of the Southwestern Virginia Medical Society in Marion, September 11 and 12, 1924.

The sensory nerve supply of the bladder wall is chiefly from the sacral nerves, especially the second and third, together with some fibres from the hypogastric plexus. The hypogastric or pelvic plexus supplies the prostatic urethra, including the montine region, while the anterior urethra in addition gets some of its fibres from the pudic nerve and possibly from the nervus erigens. The nerve endings are particularly rich in the region of the trigone, the vesical sphincter, and the prostatic urethra. These are the points over which the end of the cystoscope is moved during observation of the urinary efflux and during catheterization of the ureters.

In using ten per cent novocaine solution, we deal with probably a maximum therapeutic concentration of the most efficient and probably at present the least toxic local anesthetic. The application of the solution directly to the empty bladder and posterior urethra by the method described bathes the trigone, ureteral meatuses, the sphincteric region, and the posterior urethra with strong anesthetic solution in a way that none of the usual methods do. Spasm of the ureteral meatuses which is one of the bugbears of the urologist in catheterizing the ureters of hypersensitive patients has been absent in the cases on which this report is based. Two tuberculous bladders and a number with marked cystitis as the result of old chronic pyelonephritis are to be especially mentioned. In these the anesthesia was efficient, only slight discomfort being complained of.

Local anesthesia by the method described probably persists from fifteen minutes to a half an hour, after the anesthetizing fluid is diluted by the introduction of the distending fluid used in connection with the cystoscopy. This is certainly more than ample time for any type of examination or treatment, with the possible exception of litholapaxy where sacral anesthesia is probably the method of choice.

It should be emphasized that no claim is made that the method outlined will be of any value in preventing post-cystoscopic reactions, such as ureteral colic, vesical tenesmus, transient acute hydronephrosis, etc. Neither the ureter nor the kidney is affected in any way. However, the method described seems to me to be ideal for routine cystoscopic observation and treatment and in my own hands has proved more satisfactory than any other type of local anesthesia used.

Correspondence

No Reduced Railroad Rates to Staunton.

Ridgeway, Va.,
September 15, 1924.

To the Editor:

After extended correspondence, reduced rates were granted us to the Norfolk meeting of the Medical Society of Virginia and one hundred and seventy-six paid cash fares. With the help of the General Passenger Agent of the Norfolk & Western, we were given another trial with reduced fares to the Roanoke meeting last October, with the understanding that if 250 tickets were not paid for, we would not ask the railroads for reduced rates this year to Staunton. Only seventy-six bought tickets after every effort to get doctors with passes to buy tickets for their wives and daughters, and each member was urged to use his certificate and get the reduced rates, so that the rules might be complied with, thus guaranteeing rates this time. It appeared to most physicians that this was not of sufficient importance to them to get their co-operation for the general good of the Society along this line, and now no reduced fares are available for the doctors most needing them—the poorer country physicians.

The Railroad Passenger Association requires 250 tickets to be paid for with cash (not surgery), to get the lower rates. What is to be done?

Unless reduced rates are given, the attendance will grow less yearly. The suggestion is made that, until the rules are changed by the railroads, we meet at the time the annual Fairs are held in the largest cities. Some will say accommodation will be lacking for both at the same time, but, by investigating the subject, you will find four cities with ample room for both. Besides, it gives the doctors outside recreation not to be gotten any other way.

The next method is for this committee to co-operate with others in the other states and show the railroad companies that it is only fair to count passes as so many cash fares, and get the rules changed. In this way we would have the lower rates to all future meetings.

Let every Society member without a pass come by automobile to Staunton and show the railroad companies their loss by not giving us fair treatment.

J. Beverly DeShazo,
Chairman Transportation Committee.

Explanation of the "West Law" for the Physical Inspection of School Children.

Richmond, Va.,
September 11, 1924.

To the Editor:

Much misunderstanding has arisen in the minds of doctors and laymen in regard to the requirements of the West Law about physical inspection of school children.

The physical inspection required of teachers is not a medical examination. Any intelligent layman with a little instruction can make the required physical inspection, which simply determines whether there is an obvious departure from the normal, which might handicap a child in receiving his instruction in the school room. The inspection consists of determining whether the vision is normal, according to Snellen's Chart, and whether the hearing is normal as determined by conversational voice at twenty feet, and whether there are defective teeth, whether there is mouth breathing, whether a child is underweight, according to standard tables issued by the Bureau of Education, and whether there is any skin eruption. If there is any departure from the normal disclosed by this inspection, the child is instructed to visit the family doctor for "medical examination and treatment."

Teachers and nurses are instructed not to make a diagnosis or prescribe treatment.

Experience of the last two years has demonstrated the great value to the pupils of the physical inspections that have been made. Many hundreds of children have been found with physical defects, which handicap them in their work and which have been in many instances relieved by the prompt attention of their physicians. Last year 24,000 corrections of physical defects were reported as having been made by the family physicians and specialists as result of these inspections.

Physical inspection is made by nurses or teachers to report on the following:

Skin eruption	Posture
Vision	Height
Hearing	Weight
Mouth breathing	Underweight
Teeth	

Medical examination is made only by a doctor to determine functional or organic defects of the following:

Eyes	Nutrition
Ears	Glands
Nose and throat	Lungs
Mouth	Abdomen
Skin	Kidneys
Back	Blood
Feet	Nervous system

Criticisms of the work and suggestions for improvement will be appreciated.

Ennion G. Williams,
State Health Commissioner.

Summer Grippe.

New Market, Va.,
September 6, 1924.

To the Editor:

I am anxious to report some unusual and interesting cases now exhibiting themselves in my practice. During the latter part of June I was called to see a family of five people. Every patient in the family presented the following pathological picture:

"Severe headache; backache, general muscular aching, anorexia; profuse sweating; toxemia; coated tongue; pulse ranging from 80 to 130; temperature ranging from 99 3/5 to 103 3/5; chilly; nausea and frequent vomiting."

I particularly noted the absence of a distinct chill; pain in the chest; or severe abdominal pain. I was much surprised to find that in less than twenty-four hours there was complete recovery with the exception of a slight weakness. In every case I have failed to find any existing pathology in the lungs.

Perhaps ten days later I was called to see a man and his wife both exhibiting exactly the same picture. In forty-eight hours or a little less both completely recovered without the slightest bad effect.

Since the original cases during June I have had as many as seventy-five or eighty cases presenting exactly the same picture and recovery as complete as the original cases and as prompt.

Now, it is interesting to note that upon first examination there is certainly a strong resemblance to a beginning typhoid or one of the typhoid group infections. There is more marked similarity to influenza, in some of the cases. In view of the fact that there have been a number of cases of typhoid in the county, I was careful not to make any "snap-shot" diagnosis of any case. Again, it is interesting to note the short course of the disease and prompt recovery. There is no question in my mind of an existing contagiousness or in-

fectiousness, as the case may be, as it seems to go through a family quickly.

I have been advised by another physician that he has had exactly the same thing. He stated that he did not know what it was but that he had been calling it "Summer Grippe." He further stated that at first he thought he was dealing with typhoid until the cases began to recover so promptly.

I was most anxious to get some blood cultures and secretion smears from the cases but recovery is so prompt that the patients object to being "stuck" with a needle. It is difficult to make a detailed study of this condition as the patients are not sick enough the next day to remain in bed. They return to their routine work, notifying the physician that they are all right.

I will be glad to have an expression relative to this condition and, too, as to whether any doctor has had similar cases in any other part of the State.

ALLEN H. MOORE, M. D.

The Truth About Medicine

In addition to the articles enumerated in our letter of July 26th, the following have been accepted:

Coleman and Bell Company
  Gentian Violet Improved Medicinal
Hynson, Westcott and Dunning
  Meroxyl
    Meroxyl Tablets—H. W. and D.
Jensen-Salsbery Laboratories
  Rabies Vaccine (Human) Phenol Killed
Eli Lilly and Company
  Oridine
    Oridine Tablets
H. A. Metz Laboratories
  Silver-Salvarsan, 0.6 Gm. Ampules
National Aniline and Chemical Company
  Gentian Violet Medicinal—"National"
Parke, Davis and Company
  Diphtheria Toxin Antitoxin Mixture, 0.1 L+.—P. D. and Co.
E. R. Squibb and Sons
  Antistreptococcic Serum—Squibb. Packages one 10 c.c. syringe
  Antistreptococcic Serum—Squibb. Packages one 50 c.c. vial
  Antistreptococcic Serum Rheumatic—Squibb. Packages one 20 c.c. vial
  Antistreptococcic Serum Rheumatic—Squibb. Packages one 50 c.c. vial
  Diphtheria Toxin Antitoxin Mixture (New Formula). Packages thirty 1 c.c. ampules
  Sulpharsphenamine—Squibb. 1 gm. ampules
  Sulpharsphenamine—Squibb. 3 gm. ampules.
Frederick Stearns and Company
  Insulin—Stearns Quadruple Strength
Wilson Laboratories
  Ampules Pituitary Solution—Wilson, 0.5 c.c.
Nonproprietary Articles
  Thiosinamine
  Gentian Violet Medicinal

NEW AND NON-OFFICIAL REMEDIES

Holocaine Ointment—M. E. S. Co.—Composed of holocaine (see New and Non-Official Remedies, 1924, p. 35), 1 per cent., water 1 per cent., wool fat and petrolatum 98 per cent. Put up in collapsible tubes for application to the eyes. Manhattan Eye Salve Co., Louisville, Ky. (Jour. A. M. A., Aug. 2, 1924, p. 357).

Silver-salvarsan, 0.6 Gm. Ampules.—Each ampule contains silver-salvarsan (see New and Non-Official Remedies, 1924, p. 54), 0.6 Gm. H. A. Metz Laboratories, New York.

Diphtheria Toxin-Antitoxin Mixture 0.1 L+.—A diphtheria toxin-antitoxin mixture (see New and Non-Official Remedies, 1924, p. 2993, each c.c. representing 0.1 L+ dose, of diphtheria toxin, neutralized with the required amount of antitoxin. It is marketed in packages of three bulbs, each containing 1 c.c.; also in vials containing 20 c.c. Parke, Davis and Co., Detroit. (Jour. A. M. A., Aug. 16, 1924, p. 508).

PROPAGANDA FOR REFORM

Camphor In Oil In Heart Failure.—Marvin and Soifer have studied the effects of camphor in oil as a cardiac stimulant. They failed to secure evidence of any action on heart rate, respiration, blood pressure, vital capacity or the general clinical condition in which digitalis is frequently promptly effective. Henceforth, the burden of proof that camphor in oil has a rational place in the treatment of congestive heart failure rests with its advocates. All others may well hesitate to place their trust in a drug that seems to have given more promises than therapeutic performances. (Jour. A. M. A., August 2, 1924, p. 362).

More Misbranded Nostrums.—The following products have been the subject of prosecution by the federal authorities charged with the enforcement of the Food and Drugs Act: De Witt's Kidney and Bladder Pills (E. C. De Witt and Co.), consisting essentially of methylene blue, potassium nitrate and plant material, including a volatile oil, such as juniper oil. Foster's Backache Kidney Pills (Porto Rico Drug Co.), consisting of potassium nitrate, rosin, fenugreek, uva ursi and an essential oil such as juniper. Glycofostina (Henry S. Wampole Co., Baltimore), consisting essentially of strychnin sulphate, sodium, calcium and potassium glycerophosphate, alcohol and water. (Jour. A. M. A., Aug. 2, 1924, p. 375).

Rectal Administration of Digitalis.—Digitalis is absorbed rapidly and fairly uniformly from the alimentary tract of man, although some substances in the digitalis group, notably strophanthus products, are unsuited for oral administration. However, nausea, vomiting or surgical operations may sometimes interfere with the use of digitalis by mouth. For such emergencies digitalis may be satisfactorily administered by rectum. In many patients with auricular fibrillation, the results have been rapid and beneficial. Rectal digitalis therapy is not intended to supplant the well established oral method of ad-

ministration, but rather to be used as an emergency measure when the customary mode of introduction is not feasible. (Jour. A. M. A., Aug. 9, 1924, p. 446).

The Therapeutic Use of Digitalis.—The Council on Pharmacy and Chemistry has long held that digitalis effects can be obtained satisfactorily in most instances by the oral administration of digitalis itself, the tincture or the infusion, and that the intravenous administration of digitalis preparations is rarely necessary. However, investigation indicates that digitalis preparations are administered intravenously far more frequently than seems to be demanded. Because of the importance of digitalis therapy, the Council decided to appoint a committee composed of men who have made a study of questions concerning the administration of digitalis, and to request this committee to prepare a report for publication which would set forth concisely the limitations of digitalis therapy and the methods of obtaining digitalis effects. At the request of the Council, Drs. G. Canby Robinson, Paul D. White, Cary Eggleston and Robert A. Hatcher prepared a report. This report brings out the indications for the use of digitalis, the limitations of the drug, its dosage and method of administration. It discusses at considerable length the conditions where the intravenous and intramuscular administration of digitalis may be called for and when the oral administration will be found satisfactory. The report concludes with the statement that the oral administration of digitalis in the form of the standardized powdered leaf, infusion or tincture, meets every requirement of digitalis therapy, with the exception of those relatively infrequent cases in which immediate relief is imperatively demanded, or when nausea or vomiting precludes the oral method, and outlines the intravenous, intramuscular or rectal administration of digitalis bodies when the threatening condition of the patient demands immediate relief. (Jour. A. M. A., August 16, 1924, p. 504).

More Misbranded Nostrums.—The following products have been the subject of prosecution by the federal authorities charged with the enforcement of the Food and Drugs Act: Doane's Kidney Pills (Foster-Milburn Co.), consisting essentially of potassium nitrate, ground leaves of uva ursi, a trace of volatile oil, such as turpentine or juniper oil, a resin, starch, sugar and talc. (For years the advertising of "Doane's Kidney Pills" has long been an offense against the public health. Its advertising methods have been such as to frighten the public into the belief that pain or soreness in the lumbar region is indicative of kidney disease). Lafayette Headache Powders (Lafayette Co.), consisting essentially of acetanilid, caffein, sodium bicarbonate and aromatics, including cinnamon and ginger. Grogan Mineral Water (Grogan Wells and Boone Institute of Massage), containing large numbers of bacteria and gas-forming organisms, indicating that the water was polluted. (Jour. A. M. A., Aug. 23, 1924, p. 631).

Scarlet Fever Toxin.—Scarlet fever toxin has been furnished by the John McCormick Institute to some city and state health departments. Physicians inquiring for this material, should apply to their local health department. There is an increasing demand for standardized toxin that the Drs. Dick believe should be met; however, because the toxin must be standardized on human beings, the commercial companies are going to find it difficult to standardize accurately. (Jour. A. M. A., Aug. 30, 1924, p. 705).

Chlorin Inhalations In Respiratory Affections.—Numerous devices have been advanced for the inhalation of chlorin gas. Several municipal health departments have installed treatment chambers where such devices are undergoing extensive experimentation. It is impossible to say if the virtues of the method have been demonstrated, and it must be considered in an experimental stage. The indications are that chlorin inhalations will not produce bacterial sterilization of the mucous membrane, although they seem to reduce the number of bacteria found on the tissues. The duration of an adequate treatment, the concentration of gas to be used, the methods by which the gas is to be produced, and similar factors are still the subject of experimentation. (Jour. A. M. A., Aug. 30, 1924, p. 691).

Fatal Anaphylaxis From Hemostatic Preparations.—Recently a death was reported which was caused by the injection of a hemostatic preparation. It was discovered afterwards that the patient was a sufferer from asthma and that the attacks were elicited even by the mere approach of a horse. Because of the importance of determining the anaphylactic possibilities of the various blood coagulants, the Council on Pharmacy and Chemistry had specimens of the following preparations examined: Coagulen—Ciba, Fibrogen—Merrell, Hemagulen—Lilly, Kephalin—Armour, Hemostatic Serum Lapenta (Hemoplastin)—P. D. and Co., Thromboplastin—Lederle, Thromboplastin—Squibb, Thromboplastin Hypodermic—Squibb, Thromboplastin Solution—Armour, Precipitated Horse Serum (Coagulose)—P. D. and Co. It was found that all of the specimens contained animal protein (in most cases horse or beef protein was present). In most cases the labels and descriptive literature did not state the precise nature of the coagulant. Since blood coagulants are usually administered as an emergency measure, physicians may overlook the danger and introduce these foreign proteins into a hypersensitive person. The Council recommends that all hemoplastic preparations be labeled to show the composition of the product, the character of the protein present, and to contain information which will cause the physician to inquire into the patient's history to learn if hypersensitivity exists. (Jour. A. M. A., Aug. 30, 1924, p. 705).

Book Announcements

National Health Series. Edited by the NATIONAL HEALTH COUNCIL. Funk and Wagnalls Company. New York and London. 1924. 16mo., full flexible fabrikoid. Average number of words per volume 18,000. Price 30 cents each; complete set of 20 volumes $6.00.

The six volumes herewith announced complete this series of non-technical, low priced books on health matters which are suitable for the layman: Adolescence—Educational and Hygienic Problems; Exercises for Health; The Child in School—Care of Its Health; Health of the Worker—How to Safeguard It; Home Care of the Sick; Your Mind and You—Mental Health.

Organotherapy in General Practice. G. W. Carnrick Company, 417-421 Canal Street, New York City. 1924. Fabrikoid. 253 pages.

Virginia Medical Monthly

FOUNDED BY LANDON B. EDWARDS, M. D., APRIL, 1874.
OWNED BY THE MEDICAL SOCIETY OF VIRGINIA.
PUBLISHED BY THE PUBLISHING COMMITTEE.

A. G. BROWN, Jr., M. D., Chairman, Richmond, Va.

B. R. TUCKER, M. D., Richmond, Va.
P. W. HOWLE, M. D., Richmond, Va.
E. L. KENDIG, M. D., Victoria, Va.
A. L. GRAY, M. D., Richmond, Va.

ALEX. G. BROWN, Jr., M. D., Editor.

AGNES V. EDWARDS, Business Manager and Secretary-Treasurer.

All correspondence regarding editorial matters, articles, advertisements, subscription rates, etc., should be addressed to the Journal.

All advertisements are received subject to the approval of the Council on Pharmacy and Chemistry of the American Medical Association.

Subscription Price: $2.00 per annum in advance.
Single Copies 20c.

Vol. 51 OCTOBER, 1924 No. 7

Editorial

Toxin-Antitoxin for Diphtheria Prevention.

Dr. William H. Park, director of laboratories, New York City, says about toxin-antitoxin: "From our experience during the last ten years, we are justified in believing that the general use of toxin-antitoxin in children between six months and two years of age will practically eliminate diphtheria from our community. In all our experience in New York City, we have never had any accidents, and with the improved preparation we are now using the annoyance in little children is of the very slightest."

The experience of the eminent New York physician is probably duplicable generally. The reaction that follows the administration of toxin-antitoxin is usually very mild; severe reactions are glaring exceptions. The annoyance consequent upon the severe reactions, few as they are, certainly can not be set as a counterbalance to the great advantage of immunities obtained. It is known that the three inoculations will immunize approximately ninety per cent of those receiving the treatment, and that not more than four or six persons out of every hundred are incapable of immunization by a series of inoculations.

Dr. Park further states that the children who have received the inoculations in New York have been checked up and have been found to be immune after nine years. He ventures the suggestion that they may well be immune for life. Certainly Dr. Park is entitled to entertain an optimistic attitude toward diphtheria prevention since the diphtheria death rate has been cut in half since toxin-antitoxin inoculation has been administered.

This subject might well interest our Virginia physicians. The importance of antitoxin as a curative agency is not to be questioned; but prevention is more important than cure. In rural practice this is peculiarly true, since difficulties of transportation frequently serve to delay the doctor's visit and make the early administration of antitoxin impossible.

Health authorities alone cannot banish diphtheria. For this disease as for many others, prevention lies mainly in the hands of the family doctor; and it is to the family doctor that these thoughts are presented.

I. C. R.

Tryparsamide.

One should view with interest the reports on tryparsamide in the treatment of late syphilis. About a year ago we took occasion to call this drug to the attention of our readers. The investigations and observations then in process were favorable to the drug. It seemed that this new arsenic preparation offered a refinement of action not possessed by other arsenicals. It seemed to show a trend toward selective action for neurosyphilitic pathology. During the year rather extensive use has been made of tryparsamide in neurosyphilitic cases. Observations and results obtained have been rather fully reported in two papers published in the *Journal of the American Medical Association*, for September 20, 1924, pages 888-899, inclusive. Those interested in this subject should carefully read these papers and the discussion following. In Baltimore (Moore, Robinson and Lyman), 195 patients, 133 of whom were neurosyphilitic, have been treated during the past four years with tryparsamide. These workers report that the results in early syphilis were poor. The drug is not a strong spirocheticide. It fails in repeated large doses to heal lesions or to cause the disappearance of surface organisms, while in ten cases of primary and secondary syphilis a single subsequent injection of arsphenamine produced healing. The drug possesses distinct power of penetration, and so it was used by these workers in fifty-two patients with late syphilis—nine with cutaneous syphilides, six with gummatous lesions elsewhere than the skin, thirteen with cardiovascular syphilis, and nineteen with no demonstrable lesions but with persistently

positive blood Wassermann reactions. The result in this group was found less favorable than that gotten by arsphenamine and mercury. The blood Wassermanns, also, were not affected by the drug. The drug has been abandoned in this group of cases.

In neurosyphilis the drug was tried in 133 cases. In this field of therapy it seems to be of value.

The clinical effects of tryparsamide therapy may best be evaluated by considering its action on seventy-eight neurosyphilitic patients, of whom twenty-nine had not been previously treated and forty-nine had received prior treatment without complete relief of symptoms. There were thirty-six cases of general paralysis treated by the drug. Twelve with advanced disease were improved or became worse. Five died. In this group remission of mental symptoms has occurred in nine, while fourteen have returned to useful occupations. Lightning pains and gastric crises were improved in three and completely relieved in six of eighteen patients with tabes. Some of these had failed to get relief after intensive treatment with arsphenamine. Eight of the tabetic patients were unimproved.

There were twenty-four patients with meningovascular syphilis. Twenty, showing such symptoms as headache, vertigo, convulsive and cranial nerve palsies, were improved or completely relieved; four were not helped.

These observers conclude that, in primary and secondary syphilis, or in tertiary syphilis without nervous system involvement, the therapeutic effect of tryparsamide is so slight as to preclude its further use in these types of infection; but in neurosyphilis they believe it is far superior to any other form of treatment. Tryparsamide is of special value, these authors state, in (1) early general paralysis, (2) in meningovascular neurosyphilis, and (3) in the majority of cases of tabes. In early neurosyphilis, owing to the feeble spirocheticidal value of tryparsamide, its use is of no value unless used in combination with arsphenamine.

Solomon and Viets, Boston, present results observed in the treatment of one hundred cases of neurosyphilis, covering eleven months. These cases were treated at the Boston Psychopathic Hospital and the Massachusetts General Hospital. Tryparsamide was given intravenously in three gram doses at weekly intervals. In these cases mercury and arsphenamine were also given occasionally. No serious reactions were observed except amblyopia, which remained permanent in three and transient in others. The clinical improvement in the group of cases varied with the type. Meningovascular cases showed the most pronounced improvement, and the improvement was more satisfactory than usually gotten in these cases with former methods of treatment. Tabes' cases failed to show as marked improvement as by other methods. In general paralysis, a relatively small number showed some improvement. These authors summarize by saying that general paralysis cases show no better results from tryparsamide than by older methods of intensive therapy by intrathecal, lumbar, cisternal and ventricular injections. These authors conclude by observing that tryparsamide "definitely affects cases of neurosyphilis, in some instances giving results better than can be obtained by our older methods alone, and in other cases not giving as good results." They believe, however, that tryparsamide is an important addition to our antineurosyphilitic drugs.

The Therapeutic Use of Digitalis.

One should appreciate the effort of a committee which endeavors to present in a brief paper the indications and limitations in the therapeutic use of digitalis. While there are many phases of the subject requiring elaboration, physicians who read the special article on the therapeutic use of digitalis as it appears, prepared by a committee, in the *J. A. M. A.*, August 16, 1924, page 504, have an important brief on this subject. One can hardly hope to have stated in a short paper more of the salient features of digitalis therapy than are here given. If physicians could only agree on such fundamentals, and if more of such fundamentals in therapy were oftener succinctly placed before practitioners in current literature, greater progress and success would be attained in therapy. For a brief reading and review of digitalis, our readers are urged to peruse this special article on digitalis.

Intravenous Injection of Mercurochrome and Gentian Violet in Treatment of Septicemia and Other Infections.

In the *J. A. M. A.*, March 1, 1924, Young and Hill give a report of observations made on the intravenous use of mercurochrome and gentian violet in septicemia and other infections.

The mercurochrome cases include two reports of septicemia, in which the results appear remarkable. There was a case of ascending retroperitoneal infection, two cases of pyonephritis, and two cases of colon urinary infections: in all of these cases, the effect was decidedly beneficial. Mercurochrome-220 soluble was used. Five cases of like nature were treated by gentian violet. The results were equally as brilliant. The staphylococcus septicemia appeared to yield with special promptness to intravenous injections of gentian violet.

Physicians interested in these drugs should read carefully the article referred to. Reservations should be made concerning the invariably good results until a larger number of cases receive this treatment.

News Notes

On To Staunton.

If you haven't given it serious consideration, plan now to join the army of doctors who will be going to Staunton for the meeting of the Medical Society of Virginia, October 14-17, under the presidency of Dr. W. W. Chaffin, of Pulaski. Programs sent out recently give an idea of the attractions which have been provided for the visitors. You really should not miss this opportunity to meet with your medical friends and visit this wonderful section of Virginia. Our invited guests this year are Dr. Albert J. Ochsner and Dr. Daniel A. Orth, of Chicago, and Dr. John Osborn Polak, of Brooklyn.

It was a source of regret that we were unable to secure reduced railroad rates for the Staunton meeting. So many members go on railroad passes or by automobile that it seems impossible to secure the desired number travelling by rail. A letter, on page 447, of this issue, explains the efforts of Dr. J. B. DeShazo, chairman of the Transportation Committee, and this office, in behalf of the project.

A few of the component societies are appointing their delegates to the Staunton meeting at meetings to be held early in October. The following are names of the delegates which have been reported to the Society's offices, before going to press with this issue:

ALEXANDRIA—*Delegate*, Dr. Llewellyn Powell; *alternate*, Dr. R. J. Yates.
ALLEGHANY-BATH—*Delegate*, Dr. B. H. Tatum; *alternate*, Dr. J. A. Riffe.
AMELIA—*Delegate*, Dr. P. T. Southall.
ARLINGTON—*Delegate*, Dr. P. W. Morehead; *alternate*, Dr. W. C. Welburn.
AUGUSTA—*Delegate*, Dr. T. M. Parkins; *alternate*, Dr. Kenneth Bradford.
BEDFORD—*Delegate*, Dr. E. L. Marshall; *alternate*, Dr. B. A. Rice.
BUCKINGHAM—*Delegate*, Dr. T. E. Patteson.
DANVILLE—*Delegate*, Dr. R. Bruce James; *alternate*, Dr. I. C. Harrison.
DINWIDDIE—*Delegate*, Dr. F. J. Wright; *alternate*, Dr. John Harwood.
FAIRFAX—*Delegate*, Dr. Wm. P. Caton; *alternate*, Dr. F. M. Brooks.
FLOYD—*Delegate*, Dr. J. M. Harman; *alternate*, Dr. S. T. Yeatts.
FREDERICK-CLARKE—*Delegate*, Dr. B. B. Dutton; *alternate*, Dr. H. I. Pifer.
FREDERICKSBURG—*Delegate*, Dr. G. B. Harrison; *alternate*, Dr. Lee Cooke.
LOUDOUN—*Delegate*, Dr. W. D. Sydnor; *alternate*, Dr. G. F. Simpson.
LOUISA—*Delegate*, Dr. H. S. Daniel; *alternate*, Dr. W. C. Mason.
LUNENBURG—*Delegate*, Dr. H. E. Whaley.
LYNCHBURG-CAMPBELL—*Delegate*, Dr. Geo. P. Hamner; *alternate*, Dr. J. R. Gorman.
NELSON—*Delegate*, Dr. E. C. Kidd; *alternate*, Dr. J. C. Everett.
NORFOLK—*Delegates*, Drs. J. D. Collins, Mary E. Roche, R. L. Payne, Chas W. Doughtie and George W. Schenck.
NORTHAMPTON—*Delegate*, Dr. G. W. Holland; *alternate*, Dr. Walker Jackson.
PATRICK-HENRY—*Delegate*, Dr. J. A. Shackelford; *alternate*, Dr. Geo. T. Divers.
PIEDMONT—*Delegates*, Drs. Lewis Holladay and Percy Harris; *alternate*, Dr. J. W. Scott.
PRINCE EDWARD—*Delegate*, Dr. C. B. Crute.
RICHMOND—*Delegates*, Drs. J. A. Hodges, Garnett Nelson, Fred M. Hodges, M. W. Peyser, J. K. Hall, T. D. Jones, James H. Smith and J. Morrison Hutcheson; *alternates*, Drs. Carrington Williams, Warren T. Vaughan, J. B. Stone, A. I. Dodson, J. F. Geisinger, R. E. Mitchell, W. B. Blanton and P. D. Lipscomb.
ROCKBRIDGE—*Delegate*, Dr. Reid White; *alternate*, Dr. F. M. Leech.
SOUTHAMPTON—*Delegate*, Dr. J. A. Grizzard; *alternate*, Dr. R. L. Raiford.
SOUTHSIDE—*Delegate*, Dr. Geo. H. Reese; *alternate*, Dr. J. Bolling Jones.
SOUTHWESTERN—*Delegates*, Drs. Z. V. Sherrill, W. H. Ribble and W. R. Cushing; *afternates*, Drs. Jas. K. Gray, Chas. F. Graham and E. H. Henderson.
SURRY—*Delegate*, Dr. W. W. Steward; *alternate*, Dr. J. H. Parker.
WARREN-RAPPAHANNOCK-PAGE—*Delegate*, Dr. W. J. Olds; *alternate*, Dr. J. G. Brown.
WARWICK—*Delegates*, Drs. L. E. Stubbs and W. S. Snead.

The Southwestern Virginia Medical Society

Held its regular meeting at Marion, September 11 and 12, Dr. S. S. Gale, of Roanoke, presiding. An interesting program was given and the following delegates were elected to the Staunton meeting of the Medical Society of Virginia: Drs. Z. V. Sherrill, Marion; W. H. Ribble, Wytheville, and W. R. Cushing, Dublin; alternates, Drs. James King Gray, Marion; C. F. Graham, Wytheville, and E H. Henderson, Marion.

Doctors elected to membership are: Drs. D. B. Stuart, Dublin; R. H. Harrington, Elk Creek; D. S. Divers, Pulaski; M. A. Johnson, Jr., Ernest F. Flora, and F. A. Farmer, of Roanoke.

The next meeting will be held at Pulaski, Va., March 26 and 27, 1925.

Alleghany and Bath County Medical Society.

At a combined meeting of the Medical Societies of Alleghany and Bath Counties, it was agreed that the two societies would amalgamate and be known under the above caption. It was further arranged to have six meetings each year: two at Clifton Forge, two at Covington, and two at Hot Springs. So far as known, all regular practitioners in the two counties, who are in good standing, are members of the society. Meetings are regularly attended.

R. P. Hawkins, Jr.
Secretary.

Patrick-Henry Medical Society.

At the meeting of this Society held September the 5th, at the "Roundabout Club," near Martinsville, Va., papers were presented by Drs. G. B. Dudley, Jr., R. R. Lee, and George T. Divers, following which election of officers was held. Those chosen for the coming year are: President, Dr. G. T. Divers, Stuart; Vice-president, Dr. H. G. Hammond, Martinsville; secretary-treasurer, Dr. G. B. Dudley, Jr., Martinsville.

Dr. J. A. Shackelford was elected delegate and Dr. G. T. Divers alternate to the House of Delegates of the Medical Society of Virginia at its meeting in Staunton, in October.

G. B. Dudley, Jr., *Secretary.*

The Southside Virginia Medical Association

Held its last regular meeting in Richmond, September 16, at Johnston-Willis Hospital, Dr. George H. Reese, of Petersburg, presiding, Dr. R. L. Raiford was in his usual place as secretary. The attendance was good and the meeting a most successful one. Dr. George H. Reese, Petersburg, was elected delegate to the Staunton meeting of the Medical Society of Virginia and Dr. J. Bolling Jones, also of Petersburg, alternate. It was decided to hold the next meeting in December at Petersburg. Following the business session supper was served on the roof garden of the hospital.

The Buckingham County Medical Society

Met at Dillwyn, Va., September 26, 1924, the following physicians being present: Drs. John Randolph, Perkins Glover, P. E. Tucker, and T. E. Patterson. Dr. Randolph called the meeting to order and stated the purpose of the meeting. Dr. T. E. Patterson, Ransons, was elected delegate to the Staunton meeting of the Medical Society of Virginia, and the power was given him to name his alternate should he not be able to attend. Nothing further coming up for discussion, the meeting adjourned.

J. Randolph, *Secretary.*

Dr. C. A. Hutchinson,

Appalachia, Va., is a charter member of the Appalachia Lodge, Knights of Pythias, recently reinstated at that place.

Dr. Blanton L. Hillsman,

A well known surgeon of Richmond, Va., was appointed surgeon of the Police Department of the city, under its new administration, and entered upon his duties on the first of October.

Dr. C. J. Andrews,

Norfolk, Va., announces that after October the first his practice will be limited to obstetrics and gynecology.

Major Benj. B. Warriner,

Of the Medical Corps of the regular army, who has been connected with the War Department, Washington, D. C., for some time, has been transferred to Langley Field, Hampton, Va.

Dr. Benjamin E. Hunt,

Formerly of Jeffs, Va., who graduated this year from Medical College of Virginia, Richmond, has located at Jenkinjones, West Virginia, for the practice of his profession.

Dr. Foy Vann,

Norfolk, Va., an experienced fox hunter, has again been selected by the Virginia Fox Hunters' Association as one of the judges for the fourth annual trials of the Association to be run at Suffolk, November 18-21.

Kiwanians Open Children's Ward to Danville Hospital.

The Danville, Va., Kiwanis Club has equipped and opened a cottage adjacent to Hilltop Sanitarium, in that city, as a children's ward. It has accommodations for six children and includes a living room, dining room and large porch.

American Congress on Internal Medicine.

The committee in charge of the program for the 1925 convention of The American Congress on Internal Medicine, has requested each

hospital in Washington to take part in making up the program of clinics and demonstrations for the 5,000 visiting physicians who are expected in Washington at that time.

Garfield Hospital has already formulated a tentative program, embracing clinics on metabolic diseases, the latest work in the prevention and cure of scarlet fever, and recent progress in the treatment of angina pectoris.

St. Elizabeth Hospital is planning to accommodate 1,500 of the visitors with ten clinics each morning, devoted to all branches of internal medicine in addition to special mental and nervous conditions. There will also be exhibits of specimens and a series of brain preparations showing the evolution from the simplest to the most complex structure.

The program of the United States Naval Hospital will include electrocardiograms and basal metabolism room demonstrations, exhibits in medical zoology, exhibits in gross pathology, exhibits in serology and clinical chemistry, tropical diseases; demonstrations of chlorine treatment; demonstration of preventive medicine methods; exhibits in dental diagnoses, and dental clinic, and exhibit in aviation medicine.

The Washington medical men intend to put on a program which will demonstrate to the rest of the country that nowhere is medical work more progressive than in the nation's capital.

Dr. Musgrave Health Officer in Henrico County.

Dr. G. H. Musgrave has been appointed health officer of Henrico County, to succeed Dr. B. B. Bagby, resigned. Dr. Musgrave, formerly of Boykins, Va., has for the past year been health officer of Northampton County, Va., with headquarters at Cape Charles.

Dr. Bagby has recently become health officer of Richmond, under its new administration.

Dr. Herbert Lamont Pugh,

Crozet, Va., of the class of '23, University of Virginia Medical School, sailed about the middle of September from Norfolk, via the Panama Canal, for Bremerton, Wash., where he will go aboard the U. S. S. California, flagship of the Pacific battle fleet, for duty. The California is slated for a nine months' cruise, to include Honolulu, the Philippines and Australian and New Zealand waters. Dr. Pugh has recently completed a year's service at the U. S. Naval Hospital, Boston.

New Medical Laboratories at the University of Virginia.

The Departments of Histology and Embryology, under Dr. Harvey E. Jordan, and of Pathology and Bacteriology, under Dr. Harry T. Marshall, have long since outgrown the inadequate provision for their work possible in the old Medical Building, in which they have been housed since 1906.

The completion of the splendid memorial gymnasium at the University has released the Fayerwether Gymnasium building for other purposes, and this building has been turned over to the Department of Fine Arts, under Professor Hudnut. Ultimately, this department will doubtless need the entire building, but at present it requires only the main floor, leaving the basement unoccupied. This basement has, therefore, been temporarily allotted to the Laboratory of Pathology and Bacteriology and is now being fitted up for this purpose.

At the same time, the rooms in the second floor of Cabell Hall, vacated by Professor Hudnut, have been assigned to the Laboratory of Histology and Embryology, and this laboratory was ready to begin work at the opening of the session.

Many readers of this article, familiar with the basement of Fayerwether Hall, will be interested in knowing how it is to be used for the entirely different purpose of a pathological laboratory. The windows are to be furnished with prismatic glass so as to reflect light from the sky into the building. The entire interior will be painted white. The main student laboratory will be on the west side of the basement, formerly occupied by the Cage. An instructor's room is also provided at the north end of the Cage next to the old swimming pool. The offices, record rooms, private laboratories of the staff, a research laboratory, and a store room are placed on the east side of the basement.

The student entrance will be by a new door out at the southeast window under the steps. This will lead into an entrance corridor. The student locker rooms and lavatory will be at the south end of the basement under the steps, and north of this the old locker room will be converted into a pathological museum, which will be located next to the lecture and demonstration tables. The autoclaves, sterilizers, dish washing tables, etc., will be placed

in the center of the basement formerly occupied by the showers and baths. Incubators will also be placed conveniently along the walls of this space.

The final disposition of the old pool room is not entirely settled, but it will probably be used, in part at least, for an animal room.

Although the department even now could profitably use more space than the new arrangement provides, nevertheless the new quarters are far more convenient in that all rooms are on the same floor.

The old Medical Building, which is being vacated, is of historical interest. It was planned by Jefferson for the Medical Department, though it was built a year or so after his death. As originally planned, it consisted of three lecture rooms with three adjoining professors' offices. This was at first the only provision for the Medical School of the University, the dissecting hall being built a few years later. The medical course at that time was purely didactic, so that three lecture rooms and three professors' offices met its every need. In the course of time the inevitable expansion came, and not only a dissecting hall, but other laboratories were provided, and finally the great University of Virginia Hospital was inaugurated shortly before the close of the nineteenth century. Meanwhile, the old Medical Building had housed not only its part of the medical instruction, but was also for many years, until the erection of Cabell Hall, the home of the Biological Department, under Professor Tuttle. Since 1906, it has inadequately housed the work in Pathology and Histology.

Surgeon H. McG. Robertson,

U. S. P. H. S., who for the past two years has been on duty in Richmond with the State Board of Health, has been transferred to the U. S. Marine Hospital, in Boston. In Virginia, Dr. Robertson was in charge of the Co-operative Rural Sanitation, which was carried on in a number of counties.

Red Cross Instruction in Home Hygiene and Care of the Sick.

In order that simple theories of household sanitation and practical, easily-acquired methods of nursing procedure may be accessible to women and girls, the American Red Cross conducts an extensive system of class instruction in Home Hygiene and Care of the Sick, which, since 1914, has been given to over three hundred thousand women and girls.

The aim of the Red Cross course in Home Hygiene and Care of the Sick is twofold. The first lies in the remedial field and consists in trying to teach the elementary principles of nursing, personal hygiene and household sanitation to all types of women and girls so that, in time of national emergency when a shortage of professional nursing service may exist and also in time of minor illness in the home, the women and girls of the family may be able to care for the sick in their homes. The second aim of the course lies in the preventive field of health education and consists in teaching women and girls to assist in checking infant and child mortality by the intelligent care of babies and children and to further adult health and efficiency by the prevention of avoidable diseases and the control of communicable ones. The classes are conducted by authorized Red Cross nurse instructors who give demonstrations interwoven with theory. The students then practice what the nurse has shown them. This instruction covers a period of not less than twenty-four hours and ends in practical and written tests.

Through these courses the American Red Cross is rendering a highly practical and worthwhile contribution to the betterment of individual and community health, a contribution which should earn for this great humanitarian organization the interest and support of physicians during the Red Cross Roll Call, to be held between Armistice Day and Thanksgiving, November 11-27..

Dr. S. Palmer Hileman,

Rockbridge Baths, Va., of the class of '23, Medical College of Virginia, has accepted a position as a member of the staff of Catawba Sanatorium, Va., and entered upon his duties there on October 1st. He recently completed a year's service at the Retreat for the Sick, Richmond.

Dr. W. Brownley Foster,

For several years health officer of Roanoke, Va., entered upon his new duties as director of public welfare of Richmond on October 1st.

New Superintendent of Nurses.

Miss Josephine McLeod has been appointed superintendent of nurses at University of Virginia Hospital, and entered upon her duties October 1st. She succeeds Miss Margaret Cowling, resigned. Miss McLeod is a native

Virginian and a graduate of the training school at Johns Hopkins University. Her last appointment was at Michael Reese Hospital, in Chicago.

Southern Medical Association.

The annual meeting of the Southern Medical Association, in which our readers are always so much interested, is to be in New Orleans, November 24-27, under the presidency of Dr. Charles L. Minor, of Asheville, N. C. Mr. C. P. Loranz, secretary-manager, Empire Building, Birmingham, Ala., will gladly give any information requested about this meeting.

Report of Congress on Medical Education, Medical Licensure, Public Health and Hospitals.

The council on Medical Education and Hospitals of the American Medical Association, Chicago, has just issued the Proceedings of the Annual Congress on Medical Education, Medical Licensure, Public Health and Hospitals, held in Chicago, last March. Copies of this book may be had at the nominal charge of fifty cents each.

Drs. Snarr and Hawthorne Move to Winchester.

Drs. George G. Snarr and Allen T. Hawthorne, formerly of Harrisonburg, Va., have opened offices in Winchester, Va., where their practice will be limited exclusively to the diseases and surgery of the eye, ear, nose and throat.

Dr. M. L. Dalton,

Who practiced at Floyd, Va., for a number of years and operated the Ridgemont Hospital at that place, has moved to Roanoke, Va., for the practice of his profession and has offices at 314 MacBain Building.

Dr. John Albert Key,

Baltimore, Md., has gone to St. Louis, where he will be in charge of research work at the Shriners' Hospital for Crippled Children.

"It is Cheaper to Prevent Accidents than to Pay for Them."

Under the above heading the National Committee for the Prevention of Blindness states that a survey recently made shows an estimated loss of 158,000,000 days as the result of non-fatal accidents occurring in industry in one year. Financially, alone, this means a big loss to employers. It is conservatively estimated that eye accidents constitute ten per cent of all non-fatal industrial acccidents. On this estimate, no employer or industrial manager will question the assertion that it is cheaper to prevent eye acccidents than to pay for them.

Dr. Charles Young Bidgood,

A member of the class of '20, University of Virginia, Medical School, has located in Richmond, with offices at Medical Arts Building. He will limit his work to urology. Dr. Bidgood has had wide experience in this branch, having come to this city direct from Baltimore, where he had been for two years connected with Brady Urological Institute, Johns Hopkins University, the last year as resident urologist.

Automobile Tourists, Beware!

It is announced that no less than eighty-five per cent of the waters in streams and lakes of the United States is unfit to drink. In view of this fact, some health authorities have already entered upon campaigns to safeguard public health and have sent out scientists to test and label water sources. Travelers should, therefore, carry water with them or drink only from the springs or wells about which they can obtain definite information.

Orthopedic Clinic at Bedford.

About the middle of September an orthopedic clinic was held at Bedford, Va., under the auspices of the local Red Cross chapter, at which time a number of patients were examined by Dr. Thomas Wheeldon, of Richmond, and Dr. Bernard Kyle, of Lynchburg.

Dates for A. M. A. Meeting.

The Board of Trustees of the American Medical Association have set May 25-29, as the dates for the next annual meeting, at Atlantic City, N. J.

Dr. Keister Leaves Virginia.

Dr. William S. Keister recently resigned as joint health officer of Charlottesville and Albemarle County, Va., to accept a position in health work in Decatur, Ill.

Dr. George B. Young, of the U. S. Public Health Service, at one time stationed at Norfolk, Va., was appointed to take Dr. Keister's place, and entered upon his duties on September 1st.

A Hospital-Hotel.

Hudson Towers is a hospital-hotel which is being constructed in New York City as an open institution where all ethical doctors can care for their patients. It is stated that only about 1,000 of the 7,000 physicians of New York City have hospital affiliation. This hospital will be of service to the ethical doctors in the remaining six thousand and will also provide

accommodations for such relatives of patients as the attending physicians may approve.

Dr. P. G. Hamlin,

Who has been connected with the medical staff of the Eastern State Hospital, Williamsburg, Va., has gone to Mitchell Field, Long Island, where he will be connected with the medical department of the aviation corps.

Dr. V. L. McCullers

Has moved from Locust Dale, Va., to Remington, Va., where he will make his home and practice.

Dr. Coleman B. Ransome,

For the past several years health officer of Newport News, Va., has resigned and accepted the same position in Roanoke, succeeding Dr. W. Brownley Foster, resigned.

Married.

Dr. William Wallace McChesney, Abingdon, Va., and Miss Frances Jenkins, Murfreesboro, N. C., September 2.

Captain Harry Wall, of the medical corps, U. S. A., and Mrs. Anna Mae Ehlen Ross, Towson, Md., September 8. Dr. Wall was formerly of Winchester, Va., and was connected with the staff of St. Vincent's Hospital, Norfolk, before being commissioned an officer in the medical corps of the army. He is stationed at Marie, Texas.

Dr. Douglas Dickinson Martin, Tampa, Fla., and Miss Mary Louisa Chancellor, St. Petersburg, Fla., the latter part of September. Dr. Martin was formerly of Gordonsville, Va., and is an alumnus of the former University College of Medicine, Richmond.

The Hospital for Joint Diseases,

New York, announces the opening and completion of their new hospital on Madison Ave., between 123rd and 124th Streets. The building was dedicated at a meeting held on Sunday afternoon, October 5th, and opened for inspection on the 5th and 6th of October.

Provisional Birth and Mortality Figures.

According to the Department of Commerce, provisional figures for the first three months of 1924 show lower birth and death rates than for the corresponding period in 1923.

Dr. E. R. Ferguson,

Formerly of Iuman, Va., is now located at Harrisonburg, Va., for the practice of his profession.

Dr. Jury B. Loving,

Of the class of '22, Medical College of Virginia, and formerly of Culpeper, Va., is now located at and practicing in New Goshen, Indiana.

Dr. Walter Joseph Otis,

An alumnus of the Medical College of Virginia and at one time chief house officer of Memorial Hospital, Richmond, has been promoted to the rank of lieutenant colonel in the Medical Officers' Reserve Corps, and has been assigned to the 14th Hospital Centre as consultant in neuro-psychiatry to that Centre. In addition to other duties, he is attending specialist in neuro-psychiatry to the Veterans Bureau, District Six, located at New Orleans.

Dr. Otis has just moved his offices to the Chaille Building, 2000 Tulane Avenue, New Orleans, La., and will limit his practice to neuro-psychiatry.

Dr. William Meyer,

Formerly of Odd, Va., has moved to Herndon, Va., where he is engaged in practice.

Dr. Charles V. Carrington,

Richmond, has been named surgeon of the Fire Department of this city, under the new administration, and entered upon his duties the first of October.

Late Vacationists.

Dr. Wesley Williams, Norfolk, has returned from his vacation, having spent several days in and around Gettysburg, Pa.

Dr. G. Paul LaRoque, Richmond, returned home about the middle of September, after an extended visit to the Mayo Clinic in Rochester, Minn. He returned by way of Chicago and Cleveland, visiting Dr. Crile's clinic in the latter city.

Dr. D. A. Ownbey, Newport News, enjoyed a motor trip through North Carolina in September.

Dr. and Mrs. John R. Atwell, Wicomico Church, are spending a vacation in Florida.

Dr. and Mrs. R. L. Williams have returned to their home in Norfolk, after spending the summer at various resorts in Texas.

Dr. and Mrs. Julian F. Ward, Winchester, have been on a visit to New York.

Dr. and Mrs. Hunter McGuire, Richmond, have been on a motor trip through the Valley of Virginia.

Dr. and Mrs. H. W. Porter returned to their home in Louisa, Va. about the middle of September, after a motor trip through the Northern Neck of Virginia.

Dr. and Mrs. R. C. Fravel, Richmond, re-

cently visited Mrs. Fravel's father, Dr. C. E. C. Peyton, in Pulaski, Va.

Dr. and Mrs. Henry A. Bullock and son, Richmond, returned in September from a visit to friends in Evanston, Ill.

Dr. and Mrs. T. H. Massey, Smithfield, in September took a motor trip to Washington, D. C., and other points of interest.

Dr. and Mrs. W. T. Smith, Norfolk, recently visited Dr. Smith's brother at Saluda, Va.

Dr. Lewis Holladay, Orange, attended the Virginia Synod of the Southern Presbyterian Church, in Richmond, in September.

Dr. and Mrs. Cullen Pitt returned to their home in Richmond, recently, after a visit to friends at Atlantic City, N. J.

Dr. and Mrs. E. W. Young, Petersburg, have been on a visit to Atlantic City.

Dr. and Mrs. Calvin Childress and family, of Norfolk, recently visited Dr. Childress' family in Richmond.

Dr. and Mrs. H. G. Stoneham, Waverly, while on their vacation, visited Dr. Stoneham's parents near Irvington, Va.

Dr. and Mrs. Paul Redd and daughter, Richmond, paid a visit to Irvington, Va., in September.

Dr. and Mrs. Hunter H. McGuire have returned to their home in Winchester, Va., after a motor trip to Canada.

Dr. Everett S. Barr,

Recently connected with Highland Hospital, Asheville, N. C., has returned to Philadelphia, where he will again join the medical staff of the Philadelphia Hospital for Mental Diseases, Byberry, Philadelphia. Dr. Barr is well known in this State, having graduated from Medical College of Virginia. He is a member of the Medical Society of Virginia.

Dr. George W. Black,

Of this year's class, Medical College of Virginia, has located at Pineville, N. C., for the practice of his profession.

Dr. Benjamin L. Hume,

Huntington, W. Va., an alumnus of the Medical College of Virginia, has been appointed coroner for Cabell County, West Virginia.

The American Public Health Association

Will hold its fifty-third annual meeting in Detroit, Mich., October 20-23, with headquarters in Hotel Statler. There are nine sections in the Association—Public Health Administration, Laboratory, Sanitary Engineering, Vital Statistics, Industrial Hygiene, Child Hygiene, Food and Drugs, Health Education and Publicity, and Public Health Nursing—and each section has its program. The Public Health Administration Section has secured Dr. Dick, originator of the Dick Test for Scarlet Fever, to discuss his work. Many other interesting subjects are to be discussed. Detailed information about this meeting may be secured from headquarters of the Association, 370 Seventh Avenue, New York.

The National Social Hygiene Conference for 1924

Will take place in Cincinnati, Ohio, November 19-22, headquarters being the Hotel Gibson. This conference will mark the tenth anniversary of the founding of the American Social Hygiene Association, and it will be held under the joint auspices of the national association and the Cincinnati Social Hygiene Society.

The railway companies are arranging for special rates and the local committee has planned a number of luncheons and other entertainment features. Full information and a copy of the Conference program may be obtained from Mr. E. F. Van Buskirk, Executive Secretary, Cincinnati Social Hygiene Society, 25 East 9th Street, Cincinnati, Ohio, by members of the American Social Hygiene Association and all others desiring them.

Dr. William F. Greene,

For a number of years a prominent physician of Mt. Vernon, N. Y., has retired from active practice and is making his home with his siter, Mrs. George F. Norton, at Winchester, Va.

New Out-Patient Department for Medical College of Virginia.

The building formerly known as Virginia Hospital, adjoining the college, has been renovated and two floors have been remodeled for an out-patient department of the Medical College of Virginia.

Two Pulaski Doctors Sick.

Dr. W. W. Chaffin, president of the Medical Society of Virginia, and Dr. G. G. Painter, Pulaski, Va., have both been quite sick. Dr. Painter has been out for a couple of weeks and Dr. Chaffin is reported as much improved.

Prevent Diphtheria.

At this season, when diphtheria is most prevalent, the State Board of Health is stressing the administration of toxin-antitoxin as a means of prevention. All doctors, of course,

give antitoxin when once diphtheria has developed, but too much emphasis cannot be laid on the need for early immunization, as immunity is rarely obtained within two months after administration, and it frequently requires as much as six months to secure absolute immunity.

Dr. and Mrs. Louis C. Brand,

Of Staunton, Va., sailed on September 29, for Korea, where they will engage in medical missionary work. Dr. Brand graduated from University of Virginia Medical School in 1923 and served for a year as interne at University Hospital.

Don't Shirk Your Responsibility as an American Citizen.

Whatever your ticket, show your patriotism and do your duty by voting for president on Tuesday, November the 4th. Do you realize that for every 100 who voted 96 failed to take advantage of their rights as American citizens and vote in the last presidential election? Rally round your flag at the polls on November the 4th.

The Radiological Review

Made its initial appearance this month. It is to be published bi-monthly, at Quincy, Ill., under the editorship of Dr. Harold Swanberg. This journal is to devote itself to the progress of X-ray and radium as it relates to the practicing physican and dentist. It has a large field and we wish it success.

The Annual Report of the Bureau of Vital Statistics for 1921-1922,

Replete with tables, is interesting and shows a large amount of work accomplished by the Bureau. There is a slight decrease noted in the number of births and marriages and a slight increase in the number of deaths. There was also a reduction in the number of divorces reported. Enforcement of the law for prevention of blindness in the new born by the use of a one per cent solution of silver nitrate in the eyes immediately after birth is already bearing fruit, there being noted a decrease in the number of cases of ophthalmia neonatorum.

Any doctor interested in this report may obtain a copy upon request sent to the State Board of Health, Richmond, Va.

The Association of Surgeons of the Norfolk and Western Railway

Held their annual meeting in Norfolk, Va., early this month, and, in addition to the scientific sessions, enjoyed an oyster roast at Cape Henry and visits to places of interest in that section. Dr. Jos. M. Burke, Petersburg, Va., was elected president; Dr. J. M. Manning, Durham, N. C., and Dr. Wade H. St. Clair, Bluefield, W. Va., vice-presidents; Dr. T. D. Armistead, Roanoke, Va., secretary-treasurer; and Dr. W. B. Stevens, Eckman, W. Va., and Dr. Thomas Hulick, Cincinnati, O., members of the executive committee.

Guinea Pigs For Sale.

Prices reasonable. Apply Health Officer, Newport News, Va. (Adv.)

Wanted

Interne for small hospital. Write qualifications, experience and salary first letter. Address: Box 359, Martinsville, Va. (Adv.)

Assistant Superintendent Wanted

In a hospital of sixty-five beds doing general hospital work. Write at once to Dr. J. E. Harris, Winchester, Va. (Adv.)

Obituary

Dr. Joseph Thomas Davis,

Of North Emporia, Va., died July 7th, of cirrhosis of the liver. He was forty-four years of age and graduated from the University College of Medicine, Richmond, in 1903. He was a member of the Medical Society of Virginia.

Dr. Luther Carroll Corbin,

A native of Nansemond County, Va., but who had for the past twenty years made his home at Passaic, N. J., died September 14th, at the home of a sister in Lynchburg, where he had been for about a month. He was sixty-three years of age and had graduated from Baltimore Medical College in 1894.

Dr. B. F. Fulks,

Lambsburg, Va., died of tuberculosis, May 30th, at the age of fifty-five years. He was a graduate of the Medical College of Virginia in the class of 1896.

6½% and 7%

Backed by 51 Years of Proven Safety

NO loss to any investor in 51 years--the record of The F. H. Smith Company--is your assurance of safety when you invest in First Mortgage Coupon Bonds bearing the stamp of our approval.

Consider with this record of safety the fact that--in a day when unusually low money rates prevail--you can obtain 6½% and 7% either on an investment outright or under our Investment Savings Plan.

Conservative investors have always been attracted to our First Mortgage Investments. The strong safeguards thrown about First Mortgage Bonds offered by The F. H. Smith Company have established a safety standard by which the investor may be guided.

Among our current offerings is a limited issue of 7% First Mortgage Serial Gold Bonds, in maturities running from 2 to 10 years, which may be bought in denominations of $100, $500 and $1,000.

Mail the coupon NOW, before this issue is sold, for descriptive circular and a free copy of our illustrated booklet, "Half a Century of Investment Safety in the Nation's Capital."

No Loss to Any Investor in 51 Years

The F. H. Smith Co.

Founded 1873

SMITH BUILDING WASHINGTON, D. C.

CLIP COUPON HERE

THE F. H. SMITH COMPANY, 47A
Smith Building, Washington, D. C.

Please send me descriptive circular with list of current offerings and copy of your booklet, "Half a Century of Investment Safety in the Nation's Capital."

Name .....

Address .....

Aquascutum Ltd. REGISTERED

AN ENGLISH GREAT COAT —Cravenetted.

¶ IDEAL FOR PHYSICIANS.

Hanan Shoes

C. H. Berry-Co. ESTABLISHED 1879 RICHMOND, VA.

Dunlap Hats

VIRGINIA TRUST COMPANY RICHMOND, VA. THE SAFE EXECUTOR

Capital $1,000,000 Surplus Earned $1,000,000

ESTABLISHED 1892

To act as Executor, Guardian and Trustee

$25,000,000

of investments held in Trust

Confidential Interviews Invited.

DOCTORS administer to the sufferings of the living and bring them comfort.

THIS BANK administers to the estates of the dead and brings to them protection and economical administration.

Let us have your will prepared without cost to you.

MERCHANTS NATIONAL BANK

RICHMOND, VIRGINIA

Capital. Surplus and Undivided Profits over $2,400,000.00

"SAFEST FOR TRUSTS"

Virginia Medical Monthly

OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

Vol. 51, No. 8.
WHOLE No. 869.

RICHMOND, VA., NOVEMBER, 1924

$2.00 A YEAR
20 CENTS A COPY

CONTENTS.

ORIGINAL COMMUNICATIONS:

Fibroid Tumors: Their Development and How They Produce Symptoms; Their Effect on Pregnancy and Labor; Treatment. John Osborn Polak, M. D., Brooklyn, N. Y. ---- 461

The Place of Chronic Sepsis in the Future of Medicine. R. L. Raiford, M. D., Sedley, Va. ---- 464

Some Things for the Consideration of the General Practitioner. Bittle C. Keister, A. M., M. D., Washington, D. C. ---- 468

The Interaction of Specific and Nonspecific Factors in Allergic Disease. Warren T. Vaughan, M. D., Richmond, Va. ---- 472

Further Observations on Ethylene-Oxygen Anesthesia. J. S. Horsley, Jr., M. D., Richmond, Va. ---- 476

Urinary Lithiasis. Nat H. Copenhaver, M. A., M. D., M. S., Bristol, Tenn. ---- 481

Treatment of Recent Fractures. J. Coleman Motley, M. D., F. A. C. S., Abingdon, Va. ---- 485

The Significance of Some Early Urological Lesions. W. O. Poindexter, M. D., Newport News, Va. ---- 488

Better Obstetrics: How Such May be Obtained. Burnley Lankford, M. D., Norfolk, Va. ---- 491

Report of One Hundred and Seven Consecutive Laparotomies for Pelvic Disease in Women. George H. Reese, M. A., M. D., Petersburg, Va. ---- 495

Intracranial Hemorrhage in the New Born. John O. Boyd, M. D., Roanoke, Va. ---- 496

The Ocular Factor in Headaches. Frank M. Dillard, M. D., Alexandria, Va. ---- 499

Treatment of Inguinal Hernia in Infants and Young Children. Leigh F. Watson, M. D., Chicago, Ill. ---- 500

CLINICAL REPORTS:

Report of Two Cases of Resection of the Stomach Under Local Anesthesia. J. Shelton Horsley, M. D., Richmond, Va. ---- 502

Report of a Suicide With Strange Effect on Skull. W. H. Ribble, M. D., Wytheville, Va. ---- 504

Colles' Fracture With an Unusual Etiology. J. B. H. Waring, M. D., Blanchester, Ohio ---- 504

BOOK ANNOUNCEMENTS ---- 505

PROCEEDINGS OF SOCIETIES ---- 506

THE TRUTH ABOUT MEDICINE ---- 517

EDITORIAL ---- 520

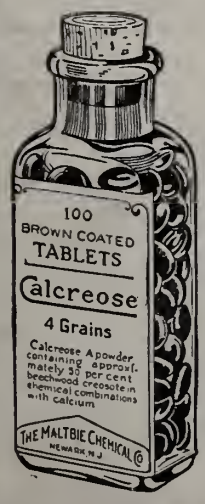
NEWS NOTES ---- 522

OBITUARY ---- 528

INDEX OF ADVERTISERS—Advertising Page 5.
(For Society Announcements, see page 32).

CALCREOSE

POWDER
TABLETS
SOLUTION



HOW TO GIVE CREOSOTE

IN BRONCHITIS, especially the bronchitis accompanying pulmonary tuberculosis, and in other conditions in which it is desired to administer creosote, the irritant action of creosote in the stomach may be avoided by administer CALCREOSE (calcium creosotate) a mixture containing in loose chemical combination approximately equal weights of creosote and lime. It differs from creosote in that it apparently does not have any untoward effect on the stomach.

Samples of Tablets on Request

THE MALTBIE CHEMICAL COMPANY
NEWARK, NEW JERSEY

THE CHIEF REASON

FOR THE PHYSICIAN'S FEEDING THE BABY IS TO INSURE NORMAL HEALTHY GROWTH

COW'S MILK MODIFICATIONS seem at present to be the safest and most adaptable food for the artificially fed infant.

Diluted cow's milk, with an added carbohydrate, meets the nutritional demands of a great majority of babies.

DEXTRI-MALTOSE, in addition to being the most easily assimilated form of carbohydrate, is marketed to the laity without directions.

The only manner in which instructions reach the mother is through her doctor. The Physician, then, CONTROLS his infant feeding cases.

TO BE ON THE SAFE SIDE

As a prophylactic against Scurvy, Physicians prescribe orange juice.

To insure against Rickets, an extremely potent Cod Liver Oil is invaluable.

MEAD'S CERTIFIED COD LIVER OIL

A dependable Cod Liver Oil of known potency, biologically tested for its antirachitic value.

MEAD'S CERTIFIED COD LIVER OIL is of such potency that sufficient quantities, both to cure and prevent rickets, can be added directly to the Feeding Formula without upsetting the fat proportions of the diet or causing indigestion in the baby.

(*Literature and liberal samples of MEAD'S CERTIFIED COD LIVER OIL sent at the Physician's request.*)

MEAD JOHNSON AND COMPANY
EVANSVILLE, INDIANA, U. S. A.

Virginia Medical Monthly

Official Organ of the Medical Society of Virginia

Vol. 51. No. 8.
WHOLE No. 869.

RICHMOND, VA., NOVEMBER, 1924

20 CENTS A COPY
$2.00 A YEAR

Original Communications

FIBROID TUMORS: THEIR DEVELOPMENT AND HOW THEY PRODUCE SYMPTOMS; THEIR EFFECT ON PREGNANCY AND LABOR; TREATMENT.*

By JOHN OSBORN POLAK, M. D., Brooklyn, N. Y.

A fibroid tumor is the most common form of uterine neoplasm; while histologically it is benign, it possesses great potentiality for harm. The development of fibroids is limited almost wholly to the period of sexual activity. From five to twenty per cent of women over thirty have these tumors, and it has been stated that a fibroid or fibroids may be found in forty per cent of the women who have reached the age of fifty years. Fortunately, few of these tumors produce symptoms; few are of large size, but all grow under the influence of repeated menstruation and pregnancy, and all fibroid tumors will bear watching.

In this age, with its rapid development of surgery, perfected aseptic technique, and the use of X-ray and radium therapy, almost all fibroids are receiving some form of treatment, often by men not trained in pathology or gynecological diagnosis; consequently the practitioner is confused in his consideration of fibroids, their life history, their dangers, their symptoms and the indications and contraindications for their treatment.

It is my purpose in this short contribution to correlate (1) the accepted clinical facts relative to myomata; (2) demonstrate to you how they develop and grow, and (3) what allied conditions change the rate of their growth; (4) how and why they produce symptoms; (5) what pathological changes they may undergo; (6) their influence on pregnancy and labor; (7) and finally, to describe what types of tumors are amenable to X-ray and radium, what types require surgery and which form of growth requires no treatment at all.

Their origin is uncertain; many theories have been advanced but none have been proven. It is probable that fibroids develop from congenital rests, or fetal misplacements of fibrous tissue in and about the wall of the blood vessels within the uterine muscles. These congenital rests appear as solid growths, are due to a proliferation of muscle and connective tissue elements in the myometrium around the different rest centers.

Clinically, it has been observed that the pituitary type woman, who has from the beginning of her menstrual life an anteverted or anteflexed uterus with a relatively large uterine body, develops fibroids. These patients always flow freely, may have comenstrual dysmenorrhoea; and are frequently sterile. Furthermore, it is shown that fibroids are usually multiple—not more than one or two per cent occur singly; and their most common location is in the posterior wall of the body of the uterus.

It is not within the purpose of this paper to enter into the discussion of the histology, or to discuss the difference in the tissue consistence between myomata and fibromata, but rather to consider all of these growths as fibromyomata, originating primarily as intramural tumors. Whether they remain as such or become evolved inward or outward by the rhythmic uterine muscular contraction depends on the amount of muscle tissue on either side of the tumor.

(1) A fibroid situated in the muscular coat of the uterine body with muscle tissue entirely surrounding it is called interstitial or intramural.

(2) When the tumor grows toward the mucous membrane, being evolved inward and projecting into the uterine cavity carrying the endometrium with it, it is classed as a submucous tumor.

All masses that are extruded into the uterine cavity (the contractile zone), sooner or later may become pedunculated. In the case of a fibroid, the tumor is forced into the cavity by muscular contraction carrying with it its endometrium, stretching it and causing an atrophy of the overlying layer. When the growth is evolved toward the peritoneal sur-

*Read by invitation at the fifty-fifth annual meeting of the Medical Society of Virginia at Staunton, October 14-17, 1924. This address was elaborately illustrated with lantern slides.

face of the uterus, and is extruded outward between the folds of the broad ligament, it is naturally termed intraligamentous; while when it grows from the lower segment of the uterus, raising the bladder above it, it is described as subvesical. Occasionally, fibroid tumors originate from the lower posterior wall of the uterus, below the insertion of the uterosacral ligaments. Such a tumor may fill the culdesac, raise the peritoneum lining the Douglas sac, and is known as retroperitoneal. Myomata are made up of unstriped muscle and fibrous tissue in varying amount—the fibrous tissue is in excess of the proportion usually found in the wall of the uterus—hence the tumor is called a fibromyoma. On gross section the fibrous tissue is seen to be arranged in crescentic layers or whorls.

Myomata, as a rule, are distinctly circumscribed tumors, being *in* but not *of* the surrounding tissues. They are enveloped by a zone of reticulated vascular tissue (their capsule) from which they derive their blood supply. Hence, the vascularity of the tumor is extremely variable, depending on its location and its relation to the larger uterine vessels. Myomata, as a rule, are not well vascularized, which accounts for the many degenerative changes they undergo. The submucous type has the poorest blood supply, consequently is the most prone to necrosis and other pathological conditions depending on a paucity of nourishment. On the other hand, the interstitial growth completely surrounded with muscle and receiving its nourishment from the vessels of the uterine wall is apt to have degenerative changes.

The subserous growths arising from the lateral fundal wall carry their circulation with them while they grow, as they push the uterine vessels before them. This type of growth frequently attains large size and may become pedunculated, which in turn subjects it to the possibility of torsion, red degeneration and other circulatory changes. The rate of growth is usually slow; more so in tumors having an excess of fibrous tissue and a limited blood supply. The rapidity of growth is usually in inverse proportion to the age of the patient. The younger the patient, the more rapid is the rate of growth. This is explained by the incidence of pregnancy and the activity of sexual life which occurs during this period. Just before each menstrual period, fibroids are observed to increase in size; the size of the tumor rapidly increases during pregnancy, only to atrophy, and occasionally disappear during involution. The tumor may become smaller after the menopause.

At this time small interstitial growths stop growing and atrophy; others show no change in size, but postpone the cessation of the monthly periods.

Submucous and subperitoneal growths are unfavorably influenced by the menopause as their circulation becomes disturbed, hence they may undergo degenerative changes or be complicated with malignant disease.

A myomatous growth in the uterus changes its shape, size and consistency. The uterus is usually considerably hypertrophied, and the endometrial cavity elongated and distorted.

The endometrium may be normal or affected by the pressure and circulatory disturbances produced by the tumor.

In submucous growths, the endometrium is over-stretched, thinned and atrophied so that the remaining glands lie parallel to the free surface of the tumor or may have entirely disappeared. The blood vessels (the veins) are dilated and appear as sinuses; actual erosion may occur. But little endometrial change takes place in small interstitial or subperitoneal tumors.

Fibroids are benign growths, do not always impair the general health, and often produce no symptoms. When they do produce symptoms, these may be classed as those that are:

(a) Suggestive.
(b) Characteristic.
(c) Confirmatory.

Suggestive symptoms are:

(1) Menorrhagia with its secondary circulatory effects, i. e., anemia, increase in pulse rate, palpitation, dyspnea, hemic murmurs, etc.

(2) Dysmenorrhoea—comenstrual pain.

(3) Sterility and abortion.

(4) Pressure effects—as evidenced by frequency, dysuria, difficult defecation, hemorrhoids, unilateral sciatic pain, edema, or varicosities.

(5) Leucorrhoea.

(6) Digestive disturbances.

Menstrual hemorrhage is common in interstitial and submucous (sessile) growths, while intermenstrual bleeding is suggestive of pedunculated submucous tumors. The bleeding is not from the tumor, but from the endometrium stretched over it and opposite the tumor mass,

a diapedesis through the walls of the capillaries from venous obstruction.

Menstrual pain is common in interstitial and submucous fibroids, even before the tumor attains large size; there may be no pain in subserous growths.

Pressure symptoms may result from tumor pressure on the bladder, ureters, rectum, pelvic veins and nerves, or result in digestive disorders from pressure or adhesions which interfere with the functions of the bowels or stomach.

Characteristic Signs are always apparent on physical examination and reveal a tumor connected with the uterus or in it, usually asymmetrically enlarging it. The tumor is inseparable from the uterus—smooth, hard, nodular and sharply defined; usually insensitive and the uterine canal is elongated and tortuous. A uterine bruit is present in two-thirds of all myomata. Intraligamentous tumors always displace the uterus.

In fibrous polypi, the cervix is generally more or less dilated and the finger will detect the effacement of the lower segment or the protrusion of the smooth tumor mass into the cervical canal.

As a Confirmatory Sign the outline of the tumor may be demonstrated by the production of a pneumoperitoneum and by fluoroscopy. All fibroids are subject to pathological change. Edema is common, especially in pregnancy. Edema is an early stage of necrosis; if persistent the tumor becomes fibrocystic. Atrophy may take place in intramural growths; at the menopause or during the puerperium. Red degeneration occurs from sudden cutting off of the nutrition without infection; it is a common change during pregnancy or after delivery. The tumor rapidly enlarges, becomes soft and sensitive; there is a slight elevation of temperature and a moderate leucocytosis. Calcification and cystic degeneration are changes usually found in subserous tumors.

Septic infection and necrosis from torsion may occur in both submucous and subserous growths.

Every fibroid should be serially sectioned, for the incidence of sarcoma and carcinoma is sufficiently large to seriously effect the prognosis.

Fibroid tumors complicate pregnancy and labor. This may also cause sterility, and if the patient does conceive, favor the occurrence of abortion, or they may grow to such a size during pregnancy as to embarrass the cardiac and respiratory functions of the woman.

Torsion and red degeneration are relatively common complications during pregnancy. While a pedunculated tumor may be removed without disturbance of the pregnancy, myomectomy of interstitial growths should never be considered. The majority of tumors do not interfere with labor except by producing malposition of the fetus, because they are lifted out of the pelvis in the course of uterine contractions and dilatation. Only cervical growths incarcerated in the pelvis obstruct labor. It is wise, therefore, to let the woman with the fibroid have a test of labor under intelligent supervision, for many deliver spontaneously. When labor is obstructed, section and hysterectomy are the procedures of choice.

Treatment: Many fibroids need *no treatment*, for they produce no symptoms and do not grow for long periods of time. But all women who are the subjects of fibroid tumors should be under observation, reporting for examination at definite intervals. Fibroids demand treatment for the control of hemorrhage, relief of pressure, rapid or progressive growth, torsion and degenerative changes. Bleeding may always be controlled by rest, packing, X-ray and radium. Drugs have little effect. The curet, aside from its diagnostic value, has no place in the treatment of hemorrhage from fibroid.

Radium may be used for the control of hemorrhage in tumors, *within the confines of the uterus*, if the tumor is not larger than a three months' pregnancy, and is without adnexal growth or parametrial or peritoneal inflammatory lesions.

Before subjecting any woman to X-ray or radium therapy, she should be examined under anesthesia to determine the exact relation and location of the tumor mass or masses, and a diagnostic curettage should be made to exclude malignancy. All scrapings should be submitted to the pathologist.

Our contraindications are similar to those set down by Keene:

(1) Tumors larger than a three months' pregnancy.

(2) Rapidly growing tumors which suggest progressive changes.

(3) Tumors producing pressure symptoms.

(4) Tumors associated with pelvic pain.

(5) Pedunculated tumors, in which radium only increases the necrosis.

(6) Tumors with adnexal pathology.

(7) Tumors with associated secondary anemia (cachetic look) in which the uterine hemorrhage has not been sufficient to account for the degree of anemia.

(8) Tumors in young women.

(9) Multiple submucous tumors distorting the uterine cavity—radium in these is likely to produce pyometra,—and finally, in cases where the tumor mass cannot be definitely differentiated, and in women who fear radium. All of these cases require myomectomy or hysterectomy.

20 *Livingston Street.*

THE PLACE OF CHRONIC SEPSIS IN THE FUTURE OF MEDICINE.*

By R. L. RAIFORD, M. D., Sedley, Va.

The discoveries of Pasteur and others as to the part played by bacteria in acute diseases paved the way for the most rapid progress in medicine and surgery during the past half century that the healing art has yet known. In fact, all of modern surgery and most of modern medicine is built up on our knowledge of the activities of the little fellows we call germs and on our ability to counteract their ravages on the human system.

The wonderful work of such men as Gorgas, Reed and Stiles in preventing disease will go down in history as among the most outstanding achievements for the uplift of mankind the world has ever known. The discoveries made by Lister and others, which have enabled the modern surgeon to enter any part of the human system with impunity, have placed surgery on a pinnacle of achievement little dreamed of by even the most progressive men of a generation ago. The work of the Child Specialist in the past few years has shown us what wonders can be done in their special field by the application of a little "horse sense" in the way of correcting diet and habits and in the removal of physical defects. Our public health boards are saving millions from an untimely grave by the dissemination of knowledge along the line of preventable diseases. So well have our efforts along the line of better health for babies and children, and the stamping out of preventable diseases borne fruit, that the average life of man has been lengthened a decade in a little over one generation.

But when we save babies from an early grave and halt the ravages of such diseases as smallpox, typhoid and malaria, there are proportionately just that many more people to die in later life from some other cause, and mortality statistics show that the death rate in the forties and fifties has been steadily increasing for some years.

A great authority has made the statement that the average man or woman would reach the ripe old age of at least ninety were we dependent on the deterioration of years alone to help us cast off this mortal coil. Some one answers that the high-speed age in which we live is causing premature senility to claim more victims than in the grand old days of our forebears. Let us grant that in a measure this is true, and yet we have but to think of the untimely death of so many in the very prime of life to realize that some as yet little known force, a juggler whose game is as insidious as it is certain, a master of destinies, whose unerring hand often strikes where frail man least suspects the blow to fall, a cause of death other than that usually found in the records of death certificates, is abroad in the land.

We may hunt the records of vital statistics, however accurate they may purport to be, and yet gain little knowledge as to the real cause of exit of many patients. To say that death was caused by angina pectoris or aortic insufficiency, by parenchymatous or interstitial nephritis, by duodenal ulcer or biliary calculi, by hemiplegia or arteriosclerosis, explains nothing as to the real or primary cause, as all of these are terminal conditions and secondary to some long-standing insidious influence that may never have been suspected, the symptoms of which we must learn to recognize early if we would save this class of cases.

Many a doctor has often, when called on to fill out a death certificate, been at a loss to designate the exact cause of death, since the patient has passed out as a result of something which was associated with a complication of chronic symptoms, and it seemed impossible to designate which trouble was most at fault. The difficulty arises from the fact, that in so far as chronic conditions are concerned, we are still classifying our patients largely according to the chain of symptoms they may happen to have. In even our most modern text-books,

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

chronic conditions classified as diseases are often not diseases at all, but merely symptoms. Most acute conditions are being properly classified as to nomenclature, cause and treatment, but when we turn to chronic ailments one can but think we are woefully at sea in this respect. We classify a case as a gastric neurosis only to find it next month under what we must term neurasthenia. We charge conditions to the dysfunction of first one of the endocrine glands and then of another, in our desperation to hand over to the family a diagnosis that will stay put. In the field of psychiatry, when after weeks or months of study, the fatalistic diagnosis of dementia praecox has been made, it is not impossible to have such a change of symptoms occur as to completely upset such findings altogether.

You are, perhaps, wondering why all this chatter about causes of death, nomenclature of disease entities, etc., but it is the study of just such things, coupled with the study of the patients that come to us for relief, which enables us to unravel the causes of their complaints and to apply the proper treatment.

I am convinced that the most important duty any physician owes to his patients is that of making a correct diagnosis. Treatment, whether medical or surgical, is not only useless but so often actually harmful unless the diagnosis is correct. I am further convinced, after a careful study of my own mistakes of diagnosis, as well as those of other men I have had chance to observe, that a very large per cent of them are made by not looking, rather than by not knowing. A little more persistence and a little more energy properly applied would clear up many a doubtful point in the case of the average patient.

Until comparatively recent years we were still thinking of many acute conditions as without a cause. Idiopathic peritonitis and idiopathic pleurisy are examples of the fallacy. Now we know that such conditions have as their cause a sudden acute activity of bacteria in the particular location affected. For an explanation of such errors we have but to remind ourselves that medicine was born in an atmosphere of mystery and empiricism from which even the most up-to-date physician finds it difficult to wholly extricate himself. At first nothing definite was known of the actual cause of either acute or chronic maladies, but as time went on the old masters of medicine began to investigate and deduct and to study the theory of cause and effect as applied to their chosen profession, and to prove that at least in some instances the science of the healing art was an exact science and that there were definite causes for certain symptoms or groups of symptoms. As a result, the outstanding men of the profession have finally explained a cause for practically all symptoms arising from acute diseases.

The pediatrician has almost completely discarded the old methods of treating children, and by correcting the errors of diet and habit and by removal of physical defects, has shown how little good drug therapy, except for relief of symptoms, does in this class of work.

The general practitioner and the specialist have to some extent followed suit and are handling acute diseases in adults by correcting the cause rather than by treating symptoms.

It now remains for us to adopt an equally sane method in treating our chronic patients. We are prone to say that these patients are of a neurasthenic or rheumatic type, that they have intercostal neuralgia or tic douloureux, or that it is just a case of nerves, and to dismiss or treat them accordingly, instead of diving in and trying to find out the real cause of such symptoms and setting out to remove them.

Regardless of whether we believe it or not, the time is fast approaching when even the last stronghold of empiricism—namely, our dealing with the various psychoses, especially the so-called functional insanities—will be broken down by placing these disturbances in a class where effect can result only when there is a cause, for the words functional or idiopathic can have no more place in medicine than in any other science.

It is not my province to prove the relation of focal infection to systemic disease or to evaluate its removal in clearing up symptoms arising therefrom. It is only necessary that we accept as proven the fundamental principles which, originating with Pasteur, have formed the modern conception that bacteria and their products are to be looked upon as the primary cause of disease. Following up this idea, experience, study and observation has convinced me that the most plausible explanation for the heretofore unexplainable causes of chronic symptoms is to charge them up to the influence of chronic foci of infection, or what is perhaps a better term, chronic sepsis, since this would

cover the activities of the causative bacteria wherever found in the system. In this connection "unexplainable causes" is used advisedly as there is no intention in this paper of dealing with the well-known factors of diet, habits and environment in their relation to disorders of the system.

If, then, we may assume that so many of the chronic complaints which cause people to seek their physicians are chargeable to chronic sepsis, it will be interesting to know something of the kind and qualifications of the germ or germs which are responsible for such infections. While many kinds of bacteria may be found present and held accountable for the symptoms arising from a given focus, it is generally conceded that the streptococcus is most often the offending organism. In this connection it is well to remember that streptococcus is a generic term referring to a great many different strains, which, while morphologically indistinguishable, have many different types with their individual cultural and pathogenic characteristics. The importance and character of these various strains have been as yet only partially studied, but it is believed that this work will constitute much of the future progress of medicine.

While for years it has been recognized that the streptococcus in its varied forms has been the causative factor in certain disease conditions, such as rheumatic arthritis, cellulitis of all types, endocarditis and others, these conditions are either acute or subacute and present symptoms of pain, fever and other phenomena far different from those which are grouped under the term of focal infection. This condition is very chronic and often devoid of any sign or symptom which might lead us to suspect its locality in the system.

You will, perhaps, wonder how the streptococcus family can be chargeable with so many ills of our bodies, both acute and chronic. However, such seems to be the case and the only explanation that can be offered is found in a close study of the habits and characteristics of these little fellows.

In the laboratories of the New Jersey State Hospital, at Trenton, Dr. Cotton has been able to isolate ten strains of this family group, five hemolytic and five non-hemolytic. Representatives of both these groups have been found in various sources of culture.

A close scrutiny of the studies of such men as Billings, Rosenow, Cotton and others leads one to the very definite conclusion that the most versatile gentleman of the bacteriological world is this little fellow we call the streptococcus. He has learned that in union there is strength, for he always works in groups arranged in chain-like formation. His habits and activities are as varied and diversified and as adaptable to circumstances as those of man himself. He can assume the role of the patient spider as he lays dormant and unsuspected at the apex of a tooth and sends out his cohorts to wreck havoc on the distant heart or kidney. A Napoleon or a Caesar never struck more boldly than this little fellow often does in cases such as the one which sent young Calvin Coolidge to an untimely grave. His activities are often as unsuspected as a Jackson, or as dogged and determined as a Grant; or he may be as insidious and as void of sentiment as a Jesse James. In fact, there is no attribute of human nature but could be simulated by this little prince of the bacterial kingdom.

This, then, is the chief actor in the role of chronic sepsis, the characteristics and activities of whom makes him by far the causative agent of most of man's chronic ills, and the deciding factor which brings us up to the necessity of signing the death certificate of so many of our friends of middle and later life.

Since we are assuming that chronic sepsis, and not merely kidney troubles, heart troubles, digestive troubles, nervous troubles, etc., of whatever name, is the real cause of so many chronic symptoms and that the streptococcus is the chief causative agent, it will be only fair to state how it all comes about.

Time will not permit a discussion of how and why infections originate, but it is a well known fact that chronic infections originate in the teeth and tonsils and from here, by continuity of tissue, or by the lymph and blood streams, may be disseminated to other parts of the body, creating secondary foci. It would be a beautiful dream were we able to stop the occurrence of primary infections, but unfortunately in the average patient who seeks our aid we must necessarily deal with more or less terminal conditions, and to get results in treatment we are obliged to remove the foci of infection, wherever found, leaving prevention largely to the future.

This removal can never be thorough, bacteriologically speaking, thus accounting for

failure of results in some cases. The wonder, however, is not that we sometimes fail in getting satisfactory results in following out this theory of clean-up work in our patients with long standing chronic symptoms, but that in so large a percentage of them we get such great and often prompt improvement.

A study of the elective localization of bacteria as enunciated by Rosenow, leads us to the opinion that such things as gall tract infection, appendicitis, gastric ulcer and renal calculi are so because of chronic sepsis found in the mouth, nose and throat. If this be true, just think of the stupendous amount of human suffering, the expense and the lives that might be saved by a little more aggressive persistence in study and activity in treatment along the line of cleaning up focal infections as related to these conditions alone. I believe the time is fast approaching when the man who removes a gall-bladder or an appendix will automatically feel that some one somewhere along the line has slipped a cog and failed to recognize symptoms which, had they been taken as a warning, would very likely have enabled the physician in charge to prevent his patient from coming to the point where a major operation was imperative.

During the past two years it has been my privilege to observe first-hand much of the work being done at Trenton by Dr. Cotton, among so-called functional insanity cases, and it is truly marvelous to see the results obtained. In a recent address Dr. Cotton emphasized the fact that the doctrine of masked infection, or chronic sepsis, is just as applicable in the treatment of systemic disorders as in the treatment of the various psychoses.

For some time I have been paying especial attention to the complaints of chronic patients with the view of ascertaining their cause. In this work I have been fortunate in having the active co-operation of a splendid dentist without whose aid much of the work could not have been done. We have grown to think of practically every chronic symptom which cannot otherwise be explained as a challenge to look for the cause in the form of some focus of infection. By so doing we have been able in a small community and with little laboratory facilities to get results in many cases where the most approved and exhaustive studies in diagnosis and treatment along old lines had absolutely failed. In fact, one of the strongest points to be made in favor of the doctrine of chronic sepsis is its simplicity and ease of application. It is, of course, very desirable to have at one's disposal a modern laboratory and a trained corps of assistants, but the results that we have obtained are convincing that the lack of such things does not prevent the treatment of chronic patients from this point of view.

While it is very interesting for us to know, it makes little actual difference to the patient what form of digestive disturbance or anemia he has so long as clearing up an old symptomless antrum infection cures it. Nor does the family care in what particular class of insanity our diagnosis places one of their loved ones if the removal of some impacted molars will restore them to mental health again.

At a recent medical meeting a prominent physician, when called on to make some remarks on the subject of focal infection which was being discussed, answered by saying, "that question was thrashed out ten years ago," and this closed the incident in so far as he was concerned.

The last word has not been said on this subject. Let us get this fact indelibly fixed in our minds, for we are just beginning to get a glimpse of the possibilities of its future influence and application in its relation to chronic conditions, and if it is the plausible working theory that it now seems to be, much that is in vogue in even our most modern medical literature, relative to chronic diseases, will have to be completely rewritten.

Personally, the more I have been able to study the theory of chronic sepsis and apply it in my chronic work the more interesting it has become. It has transformed the reading of medicine from a tiresome duty into a pleasant pastime. Many of the results obtained from what I like to term my clean-up work have seemed little short of miraculous, and by persisting along this line I have grown to like to see the old chronic come in, whereas I used to dread to have him come. It is surely a wonderfully, well-working theory for the clearing up of the average chronic case.

It is marvelous to think of what great strides we have made in recent years by our treatment of acute conditions from the standpoint of acute infection as the cause. Preventive measures are fast relegating to the past once-familiar diseases and the ambitious doctor must

needs soon look for other foes to conquer. The opportunities in the better management of chronic diseases are unlimited. Is it too much to hope that in the closer application of the principles of the doctrine of chronic sepsis in this field lies the opportunity for even greater achievements of our noble profession in the near future?

SOME THINGS FOR THE CONSIDERATION OF THE GENERAL PRACTITIONER.*

By BITTLE C. KEISTER, A. M., M. D., Washington, D. C.

In view of the many achievements made during the past half century along all lines of medicine and surgery, and since the practice of medicine has been diverted into so many unnecessary channels, it behooves the regular practitioner of Medicine to begin to take notice, as well as take an inventory of his work, making a careful survey of his legitimate field, at the same time observing his cordial relations to the various recognized branches of the profession.

The present-day tendency of the profession seems to be developing into a state of "specialism," and I may add "commercialism," and this should not be overlooked or treated too lightly by the leaders and loyal members of the profession. While I would honor the well-grounded, educated specialist as a teacher of his special branch of our great science, and also as a practitioner in certain recognized and limited spheres, yet I must deplore most seriously the tendency of the modern, pseudo-specialist, whose functions seem to extend far into the field of the general practitioner. All honor to the well-grounded, conscientious surgeon, ophthalmologist and neurologist, whose success depends largely on the co-operation of the general practitioner. In this fast age of "*get rich quick*," we have many pseudo-specialists, whose education and training are limited wholly to a superficial knowledge of their specialty, ignoring, as it were, the etiology, physiology and pathology of disease.

Among this large class of specialists, we have Drs. Heart, Lung, Kidney, Brain, Stomach, Prostate, Liver, Gall-Stone, Cancer and old Dr. Piles. All of these, we may say, belong to the general practitioner, and are his ungrateful "step-children." It is a well-known fact that the regular up-to-date physician of the twentieth century has had superior educational advantages in his college course, his post-graduate and laboratory courses, saying nothing of his diversified and rare experiences with the different phases of humanity, including the psychological side of medicine, which today is rapidly becoming a very important factor in the practice of medicine.

We also have another class of pseudo-specialists, which are of more recent origin but veiled in obscurity and chicanery. I refer to the many faith-healers, auto-suggestion, etc.; we also have the bone-adjusters, the chiropractors, osteopaths, nature-fakers, etc.

Any well-educated, well-rounded, well-equipped general practitioner of the twentieth century should be able to do as good and scientific work as any of the above mentioned specialists. To further emphasize this part of my subject, I desire to state from personal experience and observation of the modern modes of teaching in the various standard universities and post-graduate schools of both this country and in Europe, I am thoroughly convinced that the field and function of the general practitioner are rapidly becoming greater and broader with each passing decade; and on his shoulders and skill will depend the burden and responsibility of the whole profession of medicine.

The day has already come when the surgeon's knife is held in strict abeyance until the trained eye and ear of the general practitioner are made prerequisites. This is as it should be, and the sooner these important facts are recognized by the entire profession, as well as the laity, the greater will be the success and honor attending the efforts of the conscientious surgeon.

There is no good reason why the regular family physician should not have a good working laboratory connected with his private office rooms and be able to make cultures, blood counts, etc., and do as good work as the ordinary bacteriologists. There is no better diversion for the busy physician than to spend a few hours in laboratory work once or twice a week; then it affords him a pleasure to be able to diagnose his cases of diphtheria, pneumonia, typhoid fever, gonorrhea, etc., without having to send specimens to the city bacteriologist, who perchance may be fifty or a hundred miles away, or possibly on his summer vacation.

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, at Staunton, October 14-17, 1924.

If we pause to consider the lines on which medicine has advanced during the past quarter of a century, it can be shown that the most important discoveries and results have come from the laboratory rather than from the sick ward. We may take diphtheria, for instance, which had been watched clinically for many years, but it was the discovery of the bacillus and the laboratory work that resulted thereform, which made the rational antitoxine treatment possible. It was the laboratory that made Lord Lister and Louis Pasteur world famous, and through their discoveries, the most improvement in the healing art that has ever been known to mankind. The recognition that anthrax is a pathogenic organism, was the starting-point from which the great growth and progress of the science of bacteriology has arisen. Discoveries quickly followed. Obermeir found a spirillum in the blood of patients suffering from relapsing fever, and now there are a score or more of pathologic fungi which are known to be injurious to the human race, and include some of the greatest scourges of the present day. These we may credit to the laboratory as a triumph.

There are many diseases, which from their characteristics, would seem to be of parasitic origin, such as smallpox, measles, cancer, rheumatism, etc., and we hope that we are on the eve of being able to demonstrate their specific microbe, but it is as yet hope only, not demonstration, as they still withhold their secrets.

In the investigations above alluded to, the results have been laboratory rather than clinical triumps, though not entirely so. It is the harmonious union of the work of both clinical and laboratory sources that insures success to the conscientious, energetic physician.

It is cases suffering from diseases of the alimentary, circulatory, respiratory, and urinary systems, that keep our hospital beds filled. These afford an infinite amount of material for clinical study; yet, speaking broadly, it is in these groups that the smallest progress has been made of late years.

The general practitioner is afforded the very same opportunities to make a study of bacteriology and other important branches of medicine as the ordinary specialist. He can take up post-graduate work at the standard universities and post-graduate schools with as much ease and profit to himself and his clientele as any one else. I know whereof I speak, and hope to impress these facts upon the minds of my fellow-practitioners of this assemblage.

The pressing demand today, said a distinguished writer and Congressman of the medical profession, is for well-grounded, well-rounded, educated physicians, who can diagnose their cases of tuberculosis, diphtheria, typhoid fever, pneumonia, carcinoma, appendicitis, brain tumor, meningitis, etc., without the assistance of a specialist who may not be available when most needed. Rational medicine, as previously intimated, requires for its successful practice a scientific equipment, such as the microscope (with an oil-immersion lens and other smaller essentials), ophthalmoscope, phonendoscope, laryngoscope, sphygmomanometer, metabolism apparatus, urinary analysis outfit, first class electric wall-plate with all necessary currents, including the sinusoidal, diathermic and galvanic currents. It has not been long since our modern methods of investigation, instruments of precision, and the many refinements of diagnosis were either undiscovered, or the few in use were to be found only in the larger universities. It has gradually become evident, however, that to complete a medical education it is necessary to have access to a working laboratory where the physician can study the conditions which exist in health and learn to appreciate the changes wrought by disease. He should gather lessons from a thorough study of physiologic chemistry and record facts concerning the modifications of perverted functions by the application of suitable remedies. Without these object-lessons, many of the astounding advances of modern medicine could not have been made. By the aid of these, medicine has made greater progress during the past three decades than it had made previously during as many centuries.

"The scientist must of necessity be a revolutionist—all things he must prove for himself." Richter has truly said: "By the aid of these experiments, the science of medicine is compelled to march forward." This is as true today as it was in the time of Harvey, and this fact should encourage us in all fields of medicine, wherever permissible, to make painstaking experiment and draw conscientious conclusions in the recognition and treatment of disease. We should not rest contented with the

uncertain methods of our forefathers, but, with Lessing, Banting and others we must proclaim, "Not the bare truth, which everybody possesses, or thinks he possesses, but the earnest endeavor to understand the whole truth, and to get at the foundation of it, which make the true worth of a man." Ours is a profession which can ill afford to be satisfied with mere possession of mere facts, but its real power is best shown by its earnest search for truth, at the sacrifice of health, and even life itself, as was the case of our much lamented Walter Reed, who for the sake of science and humanity gave up his life. Ours is a task of blasting in the quarries of the unknown, where are hidden innumerable precious truths awaiting development. Thus may our noble art gain the reach and certitude of sway over disease, which we all yearn for it to possess.

Sir Michael Foster once said: "The phenomena of disease, being phenomena of living beings, present themselves as mixed problems of chemistry, physics and biology, to be grappled with by the general practitioner as they are grappled with by the chemist, the physicist and biologist."

"Diagnosis," says Dr. Eisener, "is the true password in the medical science of today, and this should be realized by many who continue satisfied with the uncertain methods of the past."

When Leube, in 1871, first recommended the stomach-tube for diagnostic purposes, he cleared the way for ready diagnosis of stomach diseases. Bacteriologic diagnosis of certain diseases has become a matter of routine importance with the scientific, up-to-date physician, and to him we shall look for the solution of many important problems at this age in the prevention and recognition of disease.

The number of lives annually saved by the application of bacteriologic methods in the diagnosis of disease cannot be estimated. It has been unjustly stated that the time occupied in making blood examinations with the microscope is out of proportion to the knowledge acquired. This is an unjust charge. To gain information of disease should be our aim, regardless of time and expense, but fortunately with our newer methods and modern technique, a thorough blood examination can be made in less than forty minutes. These are important matters, and should ever be kept in mind by the general practitioner. That most valuable instrument, the ophthalmoscope, should constitute one of the important adjuncts to the equipment of the general practitioner, by which he is enabled to recognize the grosser pathologic changes in the eye, leading to a diagnosis of brain, kidney and nerve lesions, that are often overlooked and maltreated by the so-called *pseudo-oculist or optometrist.*

It is no secret that the charge has been made, that too many patients in this country are often ignorantly and incompetently treated, and our medical schools and system of medical education are held responsible for this unfortunate state of affairs. We must admit that we too often fail to stimulate the "scientific sense;" men are not educated to work systematically, and hence we fall short in many important essentials that go toward rounding up a thorough knowledge of the work in hand.

Many causes might be cited that contribute to this unfortunate state of affairs. A spirit of commercialism seems to have gotten hold of many of our American medical institutions, and as a natural sequence, its influence is felt in the ranks of the profession. That unconquerable thirst for "filthy lucre" has been the indirect cause of more failures in, and has brought more discredit upon, the medical profession of the United States than all other causes combined. In this particular sense the profession has, I am sorry to say, retrograded from the old landmarks. This is, in part, due to the overcrowded condition of the profession, and the multiplicity of second-rated medical colleges, saying nothing of the "diploma-mill universities," the pseudo-science institutions of the country, all of which are sending out their so-called graduates under the "camouflage" of medicine and religion, deceiving the overcredulous public. With this overcrowding of the profession, and the intermingling of the pseudo-sciences, it is but natural that competition, antagonism and commercialism will grow keener each year in the ratio of demand and supply.

I shall now digress a little in order to present a few facts in the way of statistics and comments of a retrospective character, giving some important data worthy the consideration of not only the general practitioner, but of the entire medical profession. It is a well-known fact, recognized by our best authorities and most careful observers, that since the great world war there seems to exist in the pro-

fession a peculiar state of "*unrest*." This state of mental worry and unstableness is more noticeable among the younger portion of the profession, ranging in age from 24 to 40 years. The promiscuous commingling of the nations with the nervous excitement and uncertainty of the final outcome of the war, with its many entanglements and embarrassing sequelae of lost positions of professional employment, may in part be a contributing factor in the more recent state of unrest. This condition of unrest and unstableness of mind is not confined to the medical profession alone, but it is broadcast throughout the world, according to the views of Prof. Wm. Star Myers, of Princeton University, a well-known writer and author. He further states, that out of the 105 million people in the United States, 45 million have only the mental capacity of a 13-year-old youth, while 15 million of our population possess the mental powers of an eight-year-old child, and of the remaining 45 million statistics show that 25 million are of the mediocre, while 5 million are classed as "A" in mentality and the remaining 15 million classed as "B" in mentality. These two latter classes, according to this author, do the mental work of the entire citizenship of the country. He further states that we have in the United States over 60 million morons or imbeciles. In considering these humiliating facts of our mental stamina as a nation, it is no wonder that we have grievances with our neighbors, misunderstandings in business transactions and a general state of unrest. These conditions apply not alone to our beloved America, but to the entire world, and especially to those nations that are only semi-civilized and are still, with their superstitious ideas, bowing down to idols and false gods.

Dr. Robert H. Chase, in his able treatise on the "Ungeared Mind," does not hesitate to proclaim to the world that insanity and mental diseases are on the rapid increase, and that it is only a matter of time when our hospitals for nervous and mental diseases and our asylums for the hopeless insane will be greatly enlarged in capacity and quadrupled in numbers.

This rapid increase in deterioration of the mental faculties and nervous conditions may in part be accounted for by inheritance from our ancestry and our physical conditions from a health standpoint. The morale of our young manhood, and I may add our young womanhood, has of late years deteriorated, causing a lower percentage of stamina, stability and backbone.

Dr. Thomas D. Wood, of Columbia University, in a lecture some months ago, made the statement that out of 32,000,000 school children in the U. S., 75 per cent were physical defects, one per cent mental defects, five per cent victims of tuberculosis, five per cent with defective eyes and hearing, while 25 per cent suffered from diseased tonsils and malnutrition.

According to the Surgeon General's report, over 39 per cent of our soldier boys who enlisted for the great world war were rejected on account of physical disability. In some of the states, from 50 per cent to 75 per cent were rejected on this account. In 1920, over 300,000 babies died before reaching the age of one year; 15,000 of these died before the end of one month. Over 50,000 mothers died in childbirth last year, according to statistics. What a sad commentary for the medical profession to consider *vigorously!*

Dr. F. C. Wood, of the Crocker Cancer Research Laboratory of New York, states that cancer killed 90,000 persons in the United States last year, and that 180,000 will die this year of that disease, and that 90 per cent of all these could have been cured if taken in time. What a travesty on the intelligence of our American citizenship! According to statistics, over 500,000 people die of this disease in the entire world every year. One person dies every six minutes from cancer. This high mortality from cancer is surpassed by only one other disease, namely, The Great White Plague, which takes as its annual toll from the world 1,250,000 persons, or 144 human lives every hour. One and a half millions are incapacitated annually from tuberculosis in our own country. The number of deaths from this disease during the four years of the world war among the civilized nations, including those engaged in the armies of all the different countries, equalled or approximated the total number of soldiers killed in battle. (*Journal A. M. A.*, Oct. 5, 1918).

In China, tuberculosis takes one coolie every 37 seconds, while in Japan it takes one every two minutes, and about the same condition exists in India. These figures vary in different countries, according to the degree of enlightenment and education from a health viewpoint.

You will observe from the foregoing, that

I am treating my subject from various angles, and while we may congratulate the great science of medicine and its corps of energetic, painstaking laboratory workers on past achievements, yet there is much to do, and it behooves every up-to-date medical man to buckle on the armor of war and face these deadly enemies of the human family which are so rapidly destroying the nations of the world. Let America take the initiatory steps toward teaching the world the principles of Hygiene and Preventive Medicine, following the example of our much lamented Dr. Wm. C. Gorgas, a man of Southern birth, who made the once God-forsaken Panama country, where neither man nor beast could survive but a short period on account of the deadly malaria and other infections, a haven of rest. See what science and money have done for that once *malady-stricken country!* "The successful man is the man who knows human nature as well as he knows his profession."

1315 *Fern Street, Northwest.*

THE INTERACTION OF SPECIFIC AND NONSPECIFIC FACTORS IN ALLERGIC DISEASE.*

By WARREN T. VAUGHAN, M. D., Richmond, Va.

The term asthma was introduced into medical nomenclature to designate all forms of hurried breathing as early as the time of Hippocrates. It was not, however, until the seventeenth century that bronchial asthma came to be clearly differentiated from other forms of hurried breathing, particularly from so-called cardiac, renal and diabetic asthma. Von Helmont in 1655 and Willis in 1684 studied individuals having peculiar attacks of shortness of breath, whose lungs and other organs appeared after death to be healthy. Flover in 1698 described his own case with unusual clarity. Laennec in 1819, having introduced the stethoscope, first clearly distinguished bronchial asthma from other forms of dyspnoea and attributed the affection to spasm of the recently discovered bronchial muscles.

Many have been the theories of the causation of bronchial asthma. In addition to that of broncho-spasm, which was greatly strengthened when, in 1887, Fraser demonstrated the action of nitrites in relieving the paroxysms, it has been ascribed to spasmodic contraction of the diaphragm, to local irritation from Charcot-Leyden crystals and Curschmann spirals, to a local catarrhal process and indeed to an acute streptococcus infection of the bronchial mucosa described as an internal erysipelas.

As early as the first half of the last century, occasional observers conceived that morbid conditions of the blood, influencing at one time the skin, at another the mucous membranes, afforded the best explanation. Duclos in 1801 spoke of a herpetic tendency of this kind and Clark referred the process to changes in the mucous membrane resembling urticaria in the skin. Trousseau, around 1850, thought the disease essentially a diathetic neurosis. He insisted that eczematous and rheumatic affections, gout, gravel, hemorrhoids, periodic headaches and asthma were varying expressions of one and the same diathesis and that they might replace one another in one and the same individual.

Thus we see that fully seventy-five years ago clinicians recognized the occurrence of an asthmatic tendency or diathesis and that some at least recognized an association between asthma, urticaria, eczema, migraine and hemorrhoids, or itching piles.

The possible relationship between asthma and other diseases, such as upper respiratory infection, nasal polys, enlargement of the thyroid gland, etc., was described well before the close of the last century and the etiologic relationship of various pollens to hay fever was clearly recognized. It was generally considered that the irritation resulting from the deposition of pollen on the nasal mucosa was purely mechanical. Cases were on record of hay fever and asthma caused by contact with animal furs, odors, dust, etc.

The work of Richet, begun in 1898 and well advanced in 1902, formed the groundwork of the developing science of immunology. Many years devoted to the accumulation of experimental data were required before satisfactory working hypotheses of the phenomenon and mechanism of anaphylaxis were developed. The close clinical similarity between bronchial asthma and experimental anaphylaxis, particularly as observed in the guinea pig, was without doubt noted by many, but credit is usually given to Meltzer for having originally suggested, in 1910, that bronchial asthma may in some cases be due to an anaphylactic stenosis

*Read before the fifty-fifth annual meeting of the Medical Society of Virginia. Staunton, October 15, 1924.

of the finer bronchi. This conception threw the doors wide upon a new field of experimental medicine, and since 1910 it has been conclusively demonstrated that bronchial asthma is in a high proportion of cases a clinical expression of protein sensitization. We may realize how completely the conception of bronchial asthma has been altered and in general clarified in the last ten years when we consider that as recently as 1913, Osler defined bronchial asthma as a neurotic affection, characterized by hyperemia and turgescence of the mucosa of the smaller bronchial tubes and a peculiar exudation of mucin, the attack being due to direct irritation of the bronchial mucosa or reflexly by irritation of the nasal mucosa, or again indirectly by reflex influences from stomach, intestines or genital organs.

Clinical hypersensitiveness, as we observe it in bronchial asthma, while having many points in common with experimental anaphylaxis, differs therefrom in certain important particulars, and we have therefore come to distinguish the two by terming the experimental condition "anaphylaxis" and the clinical disease complex as "allergy"—*altered state* or *altered energy*. Allergy is a constitutional state, which follows the Mendelian law of heredity, in which one may inherit a tendency to become sensitized toward foreign proteins. We cannot say that asthma is inherited nor can we even state that sensitization to any particular protein is acquired by inheritance. It is only the *tendency toward sensitization* which appears to be inheritable, and we find that sensitization to one foreign protein in the parent may be followed by sensitization to quite another protein or to several proteins in the offspring. Indeed, the clinical manifestations may take quite different forms in different members of family groups. Thus, in one exemplary family we find one child with bronchial asthma and eczema, another with seborrhoeic dermatitis or dandruff, one with history of urticaria, and one who is apparently non-allergic. The father has shown no allergic manifestations other than seborrhoea. The mother suffered from infantile eczema and in adolescence had recurrent urticaria. The paternal grandmother had been subject to hay fever, while the maternal grandmother for years had had attacks of sick headaches. The paternal grandfather had been a victim of pruritus ani, perianal eczema or so-called itching piles. Here we find the entire gamut of allergic manifestations in a single family. Indeed, few families exist today who cannot display one or more examples of allergy.

We must indeed respect the clinical judgment of Trousseau, who, seventy-five years ago, recognized an asthmatic diathesis and called attention to its association with urticaria, eczema, hay fever, periodic headache and hemorrhoids.

The more we learn from our study of these various clinical conditions as allergic phenomena, the greater has been the number of cases that we have been able to relieve or completely cure by specific therapy; but at the same time the more closely have we been forced to a conclusion that allergy and allergic disease cannot be explained in its entirety, purely on a basis of protein sensitization. We find asthmatic or eczematous individuals clearly senstitive by skin tests to several different proteins, some of which produce no symptoms after exposure. If an individual is sensitive to two proteins apparently in equal degree, why does but one cause symptoms? How are we to account for Rackemann's observation that ten per cent of normal healthy children who have had no evidence of allergy are sensitive to one or more foreign proteins? It is true that thirteen per cent of these did develop allergic manifestations after varying intervals. But why had they not developed them at the same time that they developed the capability of giving positive skin reactions, especially when they were sometimes coming in daily contact with the offending protein?

Take a group of individuals all sensitive among others, to the protein of wheat, all relieved by the elimination of wheat from the diet and all, or practically all, having experienced recurrence of symptoms when again eating wheat, thereby proving the etiologic position of this protein. One has bronchial asthma, another recurrent urticaria, several have eczema, one involving the back of the neck, another the left hand and fingers, another the perianal region, and still another with a generalized eczema involving practically the entire body. Why the *difference in the localization* within the body when all are sensitive to the *same protein* and apparently in *like degree* and when all are coming into regular *daily contact* therewith?

In the case of eczema we may explain this

as due to the added action of a *nonspecific* factor. Thus, mechanical irritation, the rubbing of the collar on the neck, moisture and friction in the perianal region, or mechanical trauma of the hand. Likewise we may think of bronchial asthma as occurring because of some inherent diminished resistance of the mucosa of the respiratory tract, from preexisting nonspecific respiratory infection, etc., but that this is not the entire explanation is indicated by observation of the same varieties of localization in otherwise healthy infants, none of whom have been subject to precedent disease.

Again with an individual sensitive to some protein with which he comes in *daily* contact, why is it that at times he remains symptom-free, the disease manifesting itself only in attacks?

Two answers present themselves to explain in part the various questions raised. First, in all probability *nonspecific factors do act*, often, coincidently with specific agents, both in the precipitation of allergic symptoms and at the same time in determining the localization thereof. Second, even this conception of an interaction between specific and nonspecific causative factors will not answer all of the questions raised, because *our conception of the pathogenesis of allergy is still incomplete.* We now discuss it purely in terms of protein sensitization. The true conception will probably not be arrived at until we have progressed to where we can discuss it in terms of intracellular activity, in terms of the chemistry or physical chemistry of the individual cells located in various regions of the body. Thus localized urticaria from heat or light, or asthma from exposure to cold or wind must ultimately be explained in terms of cellular activity.

But, take the sensitive child who has never had symptoms from exposure to a protein to which he is sensitive. Take the individual sensitive to a protein with which he comes in daily, almost constant contact, but who manifests symptoms therefrom only at intervals.

I look upon these individuals during the intervals of freedom as being in what I have termed a "*balanced allergic state.*" The patient is sensitive, but by some mechanism still obscure, maintains a normal balance. It is useless in the present state of our knowledge to attempt to localize the mechanism by which this is accomplished. We may speak of the detoxicating action of the liver, or of the activities of the endocrine system, but so far the part which they play is as yet purely hypothetical. At any rate, the individual receives the allergenic protein within the system and disposes of it somehow without developing any of the various allergic manifestations. But allow some additional factor to overthrow this governing mechanism and symptoms will ensue. The additional factor may be *either specific* or *nonspecific.* It may be an overdose of the same allergen. Thus a child in my experience, sensitive to the protein of chocolate, can ingest small amounts with impunity while large amounts overthrow the balance and precipitate asthma. A patient with eczema of the hands, sensitive to wheat protein, noted that her symptoms cleared up on a post-war visit to Germany where the amount of available wheat flour was distinctly limited.

An individual may be sensitive to several proteins, as, for example, foods, and satisfactorily metabolize one of them, but develop symptoms when the mechanism becomes overwhelmed by the simultaneous ingestion of two or more.

A woman with autumnal hay fever due to ragweed, and without symptoms of other allergic disease, aside from recurrent urticaria, experienced but twenty-five per cent improvement in her hay fever following pollen desensitization. She was then found sensitive to several foods including wheat and egg and upon eliminating these from the diet, not only was her urticaria relieved, but, which is intensely interesting, her hay fever disappeared completely.

These are examples of allergic unbalance following the action of specific etiologic agents.

Again, the protective mechanism may become deranged through *nonspecific* causes. In eczema particularly we observe outbreaks associated with unusual constipation. The effect of teething on asthma or eczema is well known. Intercurrent infections and focal infections may act apparently nonspecifically. It is still a moot question as to whether bacterial protein may act at the same time as a *specific* allergen.

Intestinal upsets of various sorts, prolonged exhaustion, emotional upheaval, may become nonspecific provocative factors. A boy of thirteen with perennial asthma, relieved for a period sufficiently long to be conclusive by

the removal of the offending food proteins and removal from association with feathers, had an altercation with his friends. One boy started throwing stones at him. The patient had to protect himself behind a telephone post. Within ten minutes he had a violent attack of true bronchial asthma. He had eaten nothing and his enviroment had not changed. A child five years old, sensitive to the proteins of wheat, strawberry and chocolate, who has been symptom-free for two years on dietary treatment, fell by accident into a swimming pool. He was rescued at once, scarcely having had time to sink beneath the surface of the water. An attack of asthma followed shortly. This may have been due to fright or to sudden cold, but whatever the cause, it was nonspecific in nature.

Many an individual having discovered those articles to which he is sensitive, can remain symptom-free until he develops some intercurrent infection, such as acute coryza, which appears to overthrow the allergic balance.

The effect of mechanical or chemical irritation is experimentally shown in the work of Auer. Xylol applied to the ears of *non-sensitized* rabbits produced no great degree of inflammation. If, on the other hand, xylol was applied to *sensitized* animals which were then given otherwise ineffective doses of antigen, local necrosis occurred. He concluded that the inflammatory action of xylol caused accumulation of effective amounts of antigen in the locality affected. The practical application of this will be seen especially in eczema.

Non-allergic pathologic conditions in the body may play a part. Nasal polyps have been recognized as etiologic agents for years. Hernia has been mentioned. Abdominal allergy is more likely to occur in individuals in whom there is some other pathology in the intestinal tract. Disease of the endocrine system plays a part, the extent of which we do not yet know. Thus the case has been reported of a woman who developed bronchial asthma shortly after the production of an artificial menopause. She was treated over a period of practically two years with the elimination of those proteins to which she had been found sensitive, without benefit whatsoever. Three days after the exhibition of ovarian and mammary extract it is reported that her asthma ceased. I have the record of a middle-aged woman, sensitive to several food and epidermal proteins, who did not respond to removal of the allergens, to autogenous vaccine, to peptone treatment, or to the administration of calcium chlorid intravenously, but who promptly recovered following the administration of thyroid and parathyroid extracts, the former in relatively large doses. It is of interest to note that her attacks came usually with the catamenia.

And so we see that while the simple case of allergy, no matter what the form in which it manifests itself, can often be readily relieved by the process of performing sensitization tests and removing contact with the offending proteins, best results, both as far as *complete relief* is concerned and as far as the not infrequent *obscure case* is concerned, depend upon a most thorough examination of the patient. In the examination, the history is of utmost importance. Family history often gives corroborative evidence of allergic disease. Asthma in childhood not infrequently masquerades under the term of croup or bronchitis, or even of long continued sieges of whooping cough. Eczema has many names. Urticaria, hives, nettle rash, prickly heat, ringworm and poison ivy are often synonymous. After careful questioning has established the occurrence, past or present, of a true allergic condition, detailed questioning will often give valuable information as to the probable etiologic factor or factors. The patient's emotional environment is often of great importance.

The physical examination must be most comprehensive. Organic pathology in practically any part of the body might hypothetically be a nonspecific etiologic factor in the causation of true allergic attacks. The examination will include particularly thorough examination of the respiratory tract, study for focal infection, investigation of the gastro-intestinal tract from the lips to the anus, both for anatomic pathology and for functional digestive disturbance, study for evidence of endocrine derangements, and, where practicable, search for pelvic disorder. These I consider the most important phases of the general examination when applied to allergic disease, but occasionally some pertinent factor may be found in the urologic system, or elsewhere, and one can scarcely justifiably stop short of a *thorough* physical examination together with the customary routine laboratory studies. This, of course, applies particularly to those cases which have not responded to the simpler specific measures.

of therapy, and I would again emphasize that the latter is usually the most important procedure and the most promising of results. As a rule little success may be anticipated from the removal of the nonspecific factors unless the specific factors, the factors of first importance, have been previously eliminated.

This conception of allergic disease as due customarily to some form of protein sensitization, but often brought out by nonspecific causes, serves to clarify individual failures when treating the disease purely as a sensitization. At the same time it explains therapeutic successes following the application of purely nonspecific measures. The best therapy consists in removing, in so far as practicable, both groups of causes. Sometimes only one or the other type of cause can be discovered or satisfactorily removed. If this partial adjustment is sufficient to restore allergic equilibrium, to re-establish what I have called a "balanced allergic state," symptoms will disappear.

When occasionally both methods of study and treatment fail, we must feel that still other, as yet unknown, factors may play a part. And their seat will ultimately be found in the biochemical reactions of the individual cell.

Medical Arts Building.

FURTHER OBSERVATIONS ON ETHYLENE-OXYGEN ANESTHESIA.

A Report of 450 Cases.*

By J. S. HORSLEY, Jr., M. D., Richmond, Va.
From the Surgical Department of St. Elizabeth's Hospital.

Ethylene is an unsaturated hydrocarbon (C_2H_4), is found in nature as a constituent of coal gas, and forms about 4 per cent of ordinary illuminating gas. It is compressed to a liquid in steel cylinders, and is available for use in the same manner as nitrous oxide. At ordinary temperatures and pressures, pure ethylene is a colorless gas having a peculiar sweetish odor, like sorghum molasses. It may be made by extracting a molecule of water from alcohol as by heating a mixture of phosphoric acid and ethyl alcohol. Ethylene has been used commercially in a more or less pure form for several years for heating, lighting, welding, and ripening of green lemons and oranges. During the Great War, it was used in the preparation of mustard gas. Its anesthetic properties were first fully studied by Luckhardt and Carter. It was first used clinically by Dean Lewis and his associates at the Presbyterian Hospital, Chicago.

On February 12, 1924, the results of the first 116 consecutive ethylene-oxygen anesthesias given at St. Elizabeth's Hospital, were reported before the Richmond Academy of Medicine. In this preliminary report the previously published clinical observations of Luckhardt and Lewis were confirmed. The following points concerning ethylene-oxygen anesthesia were striking:

1. Beneficial effect of pre-anesthetic use of morphin and seemingly unnecessary use of atropin.
2. Ease and rapidity of induction.
3. More complete relaxation than with nitrous-oxide and incomplete relaxation in 66 per cent of upper abdominal operations.
4. Absence of cyanosis and presence of pink color.
5. Slowing of pulse rate and relative decrease in circulatory depression over that of the other general anesthetics.
6. Absence of respiratory irritation and post-operative complications.
7. Absence of sweating, and presence of dry, warm skin.
8. Slight increase in oozing.
9. Apparent rapidity of recovery and relative lack of sensation of exhaustion.
10. Low incidence of post-operative nausea and vomiting.
11. Low incidence of post-operative "gas."
12. Absence of any latent after-effects, and increased safety over other general anesthetics.
13. Average of 82 per cent and limits of 75 per cent to 90 per cent of ethylene, and average of 18 per cent and limits of 25 per cent to 10 per cent of oxygen, concentration to secure and maintain surgical anesthesia.
14. Explosibility of ethylene comparable to that of ether vapor; caution in use of open flame, electric motors and cautery in its presence.
15. Sorghum-like odor objectionable to only 3 patients—less objectionable than odor of ether.
16. Patients showed preference for it over the other general anesthetics.
17. One failure for an anesthetic state, and failure to produce satisfactory relaxation for 13 per cent of the 116 operations. In these cases ether was added in small quantities with satisfactory results.

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

Since this first report was made there have been 334 cases of ethylene-oxygen anesthesia, making a total of 450 cases since its first introduction at St. Elizabeth's Hospital, where it is used as the routine general anesthetic. On the whole, the results obtained in this larger group of anesthesias coincide with those already given in the preliminary report. There are, however, a few important points which have been brought out in the last group.

Types of Operations.

Ethylene-oxygen anesthesia may be used in practically every type of operation. These 450 cases include nearly all types of operations done *on* the head, neck, chest, extremities, perineum, and *in* the mouth, chest, abdomen and pelvis. There were three Caesarean sections, thirteen cystoscopies, and six tonsillectomies and adenoidectomies in this series, in all of which satisfactory results were obtained by the use of ethylene-oxygen alone. By increasing the pressure of the gases, using special nose or mouth inhalers and having the co-operation of the operator, a satisfactory ethylene-oxygen anesthesia may generally be maintained for nose, mouth and throat operations.

In operations of the upper abdomen the addition of small amounts of ether is necessary in about fifty per cent of these cases to produce a satisfactory relaxation. In operations on all other regions ethylene-oxygen alone will usually give ample relaxation.

Purity of Ethylene Gas.

During the last six months the demand for ethylene has been so great over the country that apparently a good many of the manufacturers of this product temporarily sacrificed quality for quantity. This accounted for the moderate increase in the post-operative nausea and vomiting in the last 334 cases as compared with the first 116. Complaints of this fact have been made from the numerous clinics using ethylene extensively and the manufacturers are now producing a purer and more uniform product.

Potential Dangers

The chief potential danger and disadvantage of this anesthetic agent is its inflammability and explosibility. Up to October, 1924, there were reported five instances of ethylene explosions.

1. Heaney, of Chicago, reports an explosion with ethylene in the delivery room where apparently every precaution had been taken known at the time, although it was evident from the facts that the explosion was due to a static spark. When a pain had been finished the anesthetist hooked the face mask over the mixing chamber of the machine. As the mask touched the mixing chamber there was a loud report and a flame spurted from the chamber which burned only moderately and was extinguished by blowing even before the ethylene had been burned off. The glass cover of the chamber was blown to fragments and bits of this caused superficial pin-point bleeding on the anesthetist's arm. He further reports that he had had the same accident happen about a year previously under similar circumstances while administering nitrous oxide, probably from fumes of ether previously used in the same machine.

2. At the Union Memorial Hospital, Baltimore, in March, 1924, the only fatal ethylene explosion occurred. The patient was a male, 65 years old, with advanced diabetes and arteriosclerosis. He had a carbuncle on the back of the neck, and considering his poor general condition ethylene-oxygen was the anesthesia of choice. For forty minutes ethylene-oxygen was administered with the patient placed upon his face, during which time the carbuncle was dissected. Wishing to seal the base of the wound with a cautery the operating room was amply ventilated, ethylene was stopped, the gas machine flushed out under pressure with pure nitrous oxide, and the patient allowed to revive during this time to the state of analgesia. Nitrous oxide and oxygen were then administered and the cauterization begun. This was continued for a period of approximately five minutes, when there was a violent explosion in the face piece, from which the patient died one and a half hours later, apparently from hemorrhage due to rupture of a pulmonary blood vessel. It was decided later that the most probable explanation of this explosion was that the patient had swallowed some ethylene gas during its administration, and that he eructated suddenly allowing the swallowed ethylene to escape just before the explosion.

3. Lundy, of the Mayo Clinic, reports an explosion of ethylene which occurred when an electric cautery was used in the axilla and the gas in the vicinity ignited. There had been a leak from the mask. There was a slight burn of the patient's face.

4. Luckhardt, of Chicago, in January reported that within the last six months a static spark had to his knowledge twice ignited an ethylene-oxygen mixture with explosive violence, tearing wide open the rubber tube leading the ethylene-oxygen mixture from the mixing chamber to the mask. Neither accident had any serious consequences to the patient, operator or anesthetist. In one case the explosion happened just at the close of a long period of anesthesia (I believe this to be the same case as reported above by Heaney), and in the other just as the mask was about to be applied to the patient's face.

5. In the course of a short perineal operation Davis, of Milwaukee, reports that the cautery was used to excise a small internal hemorrhoid. The cautery tip was handed back to the nurse after the current had been turned off, but when the tip reached the level of the patient there was a flash which singed an assistant's eyebrows and a flame, like that produced by a trail of powder, followed the level of the patient's body to the inhaler where there was a big flash followed by the explosion of the celluloid mask. The patient's face and right shoulder received painful burns from the burning of the mask. The ethylene coming through the inhaler tube continued to burn until the apparatus was turned off.

As Luckhardt and others have pointed out, ethylene with oxygen gas or air in the proper concentration forms a highly explosive mixture and therefore precludes its use in the presence of a free flame, thermocautery, or sources of electrical discharges. This constitutes one of the limitations of ether anesthesia also, and it has been proved that an ethylene-oxygen mixture is no more explosive than an ether-oxygen mixture. Ether has the further disadvantage that accompanying its explosion liquid fire is usually also present. This does not occur with ethylene. Contrary to common belief, a nitrous oxide-oxygen mixture may be ignited with an ensuing explosion by a thermocautery.

It will be noted from the instances of ethylene-oxygen explosions cited above that their causes can be classified under two heads: 1, *Carelessness* and disregard of the widely known common sense facts concerning any explosive gas. The quality of an ethylene gas sample that would not explode in the presence of oxygen or air when ignited with a cautery, spark or open flame would indeed be a poor grade of ethylene. 2, *Sparks from static electricity.* In order to overcome the first cause of explosions the same customary precautions should be taken with ethylene as are taken with ether, making allowance also for the fact that ethylene gas rises and ether vapor sinks in air. To prevent the possibility of sparks of static electricity all connections from the mouthpiece (inhaler) to the machine and tanks should be provided with means for carrying away the static current, and the machine should be grounded to water or steam pipes at all times. The static electric current is formed by the rapid passage of the gases under pressure through non-electrical conductive material, such as rubber tubing, bags, etc. Some of the new gas machines are now being constructed with this point in view. The older ones that do not have all parts connected by some electrical conductive material may easily be properly converted by wiring with non-insulated copper wire. This is a very simple procedure and quite worth while in view of the accidents already reported.

This static electricity danger is not limited to the use of ethylene alone, but also occurs with ether-oxygen, nitrous oxide-oxygen, and nitrous oxide-oxygen-ether mixtures. Luckhardt reports that ether-oxygen mixtures administered through insulated rubber tubing have been known to explode with serious violence as the result of a jump spark.

The nitrous oxide-oxygen explosion reported above by Heaney and two explosions reported in the *Journal of the American Medical Association*, indicate that both ether and nitrous oxide have been the cause of as severe explosions and injuries as any of the ethylene accidents.

In the *Journal of the American Medical Association*, January 26, 1924, a medico-legal case is reported where an explosion occurred during the administration of nitrous oxide-oxygen anesthesia. After the patient's carbuncle was removed the surgeon started to use a high-frequency electrical converter to cauterize the wound. As soon as the electrode of this machine was applied to the patient there was an explosion in the gas mask and rubber tubes attached to the mask, a hole being blown in the tube four or five inches from the face-piece. The explosion caused the patient's face to be

burned and an injury to the eyes. She recovered a judgment for $6,000.00.

In a letter from London in the *Journal of the American Medical Association*, May 31, 1924, a remarkable accident is reported as occurring in the operating room of the Cheltenham General Hospital, in which the house surgeon and the patient received severe burns. The anesthetic had been successfully administered when a spark from some electrical apparatus exploded a bottle of ether with force. The ether burst into flames which set fire to the house surgeon's trousers, severely burning his legs and hands. The patient was severely burned about the head. Other physicians escaped injury, but one of the nurses had her hair badly singed. The operating theater was set on fire, but the flames were put out by an extinguisher.

Combinations of Various Anesthetic Agents.

It is usually desirable to give a preliminary hypnotic. Morphin sulphate (grains ⅛ to ¼) is very satisfactory if ethylene is to be used alone and atropin sulphate (grains 1/150 to 1/120) is added if it is to be combined with ether. Many combinations of anesthetics may be used. Nitrous oxide may be used for induction if the patient objects to the odor of ethylene. Ether may be added for more complete relaxation. Local anesthesia may also add to the relaxation if ether is contraindicated. Lundy claims that there is more synergism between ethylene and ether than between nitrous oxide and ether. Carbon dioxide may be used to very great advantage in all anesthesias, and especially with ethylene. Occasionally between the second and fourth minutes, and possibly later in the course of ethylene anesthesia, respiration may be temporarily inhibited. The administration of a small percentage (about five per cent) of carbon dioxide gas will sufficiently stimulate respiration and instead of the patient becoming cyanotic and rigid, the pink color and relaxation may be maintained by the added deeper breathing and consequently the more thorough saturation of the patient with the anesthetic agents. Carbon dioxide is the natural respiratory stimulant and in small amounts (around 5 per cent) has no toxic or untoward properties. It has been extensively advocated and used by Henderson, of Yale, in resuscitating patients for carbon monoxide poisoning. In combination with oxygen it can be used with very excellent results in resuscitating babies at birth.

By the method of rebreathing carbon dioxide has been used rather generally for a long time. Here the patient furnishes the carbon dioxide with each expiration and usually this is enough for the average ether anesthesia. The supply, however, is often wanting and unavailable at the time it is most needed, that is, when the patient is breathing poorly or exhibiting the breath-holding reflex. This gas, like oxygen, nitrous oxide and ethylene, may be obtained in tanks under pressure, and by a suitable attachment may be used whenever and in whatever quantities desired during the anesthesia. By this means a more even induction and conduction of the anesthesia as well as better relaxation are secured. Rebreathing, if not forced or too prolonged, has the advantage of furnishing the patient with his own carbon dioxide supply, keeping the gaseous exchange at a temperature more nearly that of the body and lessening the free escape of the anesthetic agents.

Oozing.

It has been asserted that there is more oozing while ethylene is being given than when other anesthetics are used. In a few cases there seemed to be a slight increase in oozing while ethylene was being administered. In such instances, changing or combining the anesthetic mixture has made no noticeable effect on the bleeding. Granted that oozing is increased with ethylene anesthesia, it is much better to have this added bleeding occur during operation where it can be properly controlled than to have it occur afterwards, so it insures complete hemostasis.

In studying this occasional apparent increase in bleeding, the coagulation time of twenty consecutive ethylene anesthesia cases was made on the day previous to operation, at the close of the operation when the concentration of ethylene in the body was at its maximum, and seventy-two hours following operation. As may be seen from the accompanying table in no instance was the coagulation time prolonged either when the patient was fully saturated with ethylene or at seventy-two hours after operation. This definitely shows that the alleged increased oozing is not due to any change in the coagulation time of the blood. It seems most probable that it is due to a vasomotor dilatation. This factor may also account for

CASE	Average C H O 2 4 2	Age	Duration of anesthetic Minutes	Coag. time 24 hours before		Coag. time at close of anesthetic		Coag. time 72 hours after operation	
				Min.	Sec.	Min.	Sec.	Min.	Sec.
1. Mrs. T. I. W.	75—25	59	25	6		3	42	5	58
2. Mr. C. M.	80—20 (ether)	30	85	4		3	57	4	2
3. Mr. T. M.	75—25	23	40	4	25	4	28	4	
4. Miss W. H. D.	75—25	38	45	4		4	3	5	15
5. Mrs. O. C. B.	75—25	53	90	5		4	59	4	
6. Mr. E. E. M.	80—20	30	30	6		5	33	6	
7. Mr. A. C. C.	70—30	18	35	4	22	4	18	4	18
8. Mr. O. M. W.	80—20	35	30	4		3	45	4	
9. Miss B. M.	50—50 (ether)	38	140	4		3	12	4	2
10. Mrs. F. M.	75—25	51	140	2	45	2	38	3	
11. Miss E. S. T.	75—25	22	25	4		3	58	4	
12. Mr. H. M. H.	75—25	19	145	7		3	23	3	15
13. Miss H. S. N.	75—25	42	95	4		3	59	4	
14. Miss B. M.	50—50	39	70	3	24	3	15	3	
15. Mrs. E. L. F.	60—40	46	85	4	23	3	31	4	25
16. Mr. A. K. M.	80—20	31	90	4		3	4	4	
17. Mrs. R. H. R.	70—30	64	60	4		1	45	3	58
18. Mrs. G. K.	80—20	31	90	3	25	3	10	3	32
19. Mrs. T. A. K.	80—20	54	35	4		3	42	3	58
[redacted]								(24 hours)	
20. Mrs. G. P. D.	75—25	32	40	3	41	3	27	3 (24 hours)	34

the usual pink color of the head, neck and upper trunk during ethylene-oxygen anesthesia.

Poor Operative Risks.

Ethylene has its greatest value in bad operative risks if a general anesthetic is indicated; the poorer the risk the greater the indications for ethylene. In the complete series of 450 cases there have been six patients with diabetes, eight with active pulmonary tuberculosis, a good many cases of varying degrees of well-marked renal, cardiac, and non-tuberculous pulmonary disease. In none of these cases has there been an exacerbation of the already existing complicating conditions, which could in any way be attributable to the anesthetic. The outcome with a similar group of patients following the use of nitrous oxide or ether or the two combined has given considerable trouble and at times added heavily to the production of further complications, sometimes resulting in death.

Summary

1. Further observations on 334 cases of ethylene-oxygen anesthesia confirm in large part the observations of the preliminary report of 116 cases.

2. The gas manufacturers are now producing a purer and more uniform grade of ethylene than their products of the last six months, and consequently the clinical results are better and more uniform.

3. Ethylene gas is explosive, though no more so than ether vapor. To prevent accidents:

(a) Practically the same common-sense precautions should be observed as have long been known for ether. Neither agent should be used in the presence of an open flame, or near a thermocautery or sources of electrical discharges.

(b) The jump spark is a source of potential danger in the use of all general anesthetics as well as ethylene and can be prevented by having all portions (including the inhaler) of the anesthetic apparatus connected by some electrical conductor and the machine then grounded to a water or steam pipe. This arrangement assures the carrying off of any static electricity which may be created by the passage of the gases.

4. Ethylene may well be used in combination with nitrous oxide or ether, or with both. Ethylene and ether blend very nicely.

5. The use of an extra supply of carbon dioxide gas as well as rebreathing are distinct advantages in the production of a smooth induction and anesthetic course and more complete relaxation.

6. Studies on twenty patients before, during, and after ethylene anesthesia show that the occasional apparent increased oozing is not due to any change in the coagulation time of

the blood, but probably to a transient vasomotor dilatation.

7. Ethylene has its distinct advantages in the poor operative risks—the poorer the risk the greater the indications for ethylene.

Conclusions.

Ethylene-oxygen anesthesia is the best routine general anesthetic yet known. It produces a sleep more nearly normal than does any other general anesthetic, and has its most distinct advantage in the poor operative risks. Carbon dioxide gas may well be used in anesthesias to produce a more even course and more complete relaxation. Ethylene combines well with other anesthetics, a fact which is at times very helpful.

Bibliography.

Davis, C. H., Explosibility of Ethylene, *J. A. M. A.*, May 17, 1924, p. 1607.

Foreign Letters, *J. A. M. A.*, May 31, 1924, p. 1794.

Heaney, N. S., Ethylene-Oxygen Anesthesia in Obstetrics and Gynecology, *S. G. & O.*, May, 1924, pp. 692-694.

Henderson, Y., Resuscitation from Carbon Monoxide Asphyxia, from Ether or Alcohol Intoxication, and from Respiratory Failure Due to Other Causes. *J. A. M. A.*, Sept. 6, 1924, pp. 758-764.

Horsley, J. S., Jr., Ethylene-Oxygen Anesthesia, *Va. Med. Monthly*, 50; 822, March, 1924.

Luckhardt, A. B., Potential Dangers Attendant on Ethylene-Oxygen Anesthesia, *J. A. M. A.*, May 17, 1924, pp. 1603-1604.

Luckhardt, A. B., and Lewis, Dean, Clinical Experiences with Ethylene-Oxygen Anesthesia, *J. A. M. A.*, 81:1851, Dec. 1, 1923.

Lundy, J. S., The Comparative Value of Ethylene as an Anesthetic. *J. A. M. A.*, Aug. 2, 1924, pp. 350-354.

J. A. M. A., Medico-Legal Department, Jan. 26, 1924, pp. 329-330.

Personal communication from Union Memorial Hospital, Baltimore, Md., March, 1924.

URINARY LITHIASIS.

By NAT H. COPENHAVER, M. A., M. D., M. S.,
Bristol, Tenn.

The progress made in the accurate diagnosis of urinary calculi during the past twenty-five years is very gratifying. The extraordinary accuracy has been brought about chiefly by the X-ray, combined with cystoscopy. But in spite of the great stride made, many pitfalls still persist, both in diagnosis and treatment.

Like many other diseases of unknown etiology that play an important role in both medicine and surgery, the cause of stone formation is still one of theory. Time will not permit a discussion of the many theories advanced. Needless to say, they are numerous. Hippocrates was the first to venture an explanation of the disease.

Urinary calculi most probably originate in the kidney, with the exception of those that develop from foreign bodies in the bladder. The theory advanced by Hunner that stones originate in the ureter due to stasis above a stricture and float back into the pelvis of the kidney is not generally accepted. Slowing of the urinary drainage may be a factor, but can hardly be accepted as a cause. Mechanical obstruction from pelvic tumors and pregnancy would predispose to stone formation, but it is a well known fact that stones are much more common in men than women. Likewise the same objection might be offered for the infection theory, as infection of the genito-urinary tract is more prevalent in women.

Rosenow has during the past few years developed the doctrine of localization and specific activity of bacteria. Infection as a cause of stone formation has recently been given very substantial aid by a brilliant piece of work of Rosenow and Meissner in which devitalized teeth of normal healthy dogs were infected with pus taken from stone producing patients. The teeth were infected with streptococci from the urine, infected teeth, and tonsils of nine patients with typical nephrolithiasis. By this method calculi or lesions of the medulla were produced in 87 per cent of the dogs.

Another theory which shows scientific progress is the physico-chemical or colloid theory. It is a fact that salts are dissolved in the urine in a far higher degree of concentration, that is, far above the saturation point of pure water. The cause of this as explained by physiological chemists is due to the presence of colloids in the urine, and that they exercise a protective influence in keeping the urinary solids in solution. There is a delicate balance existing between the protective action of the colloids and the solubility of the urinary solids. With the removal of the protective colloids, the urine will become subject to the laws obtained in other aqueous solutions and precipitation of the supra-saturated salts will take place. The colloid theory explains the physico-chemical basis of stone formation, but we are still ignorant of the cause or causes that produce the disturbance in the colloid equilibrium. What this disturbing factor is remains a problem for further research.

Diagnosis.

Urinary calculi are found in men more frequently than women. In Barney's series of

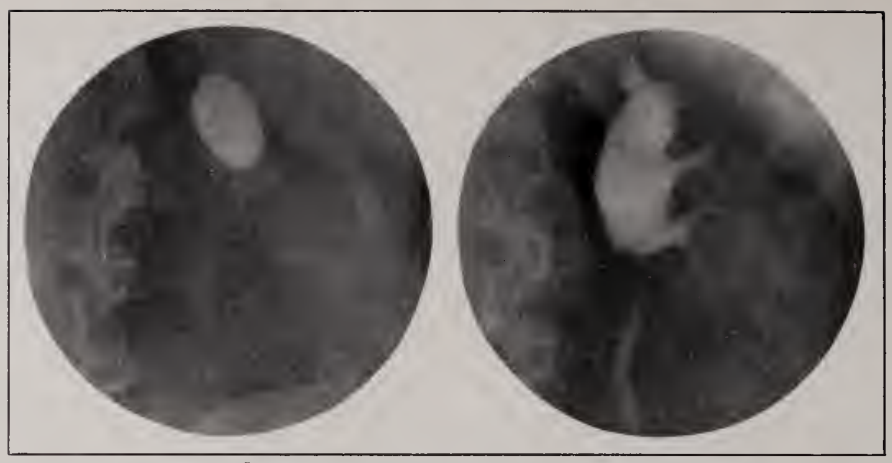


Fig. 1. (a) Large shadow, left renal area; twenty year history.
(b) Renal stone (Pyelogram Fig. 1).

139 cases there were 108 males and 31 females. They occur at any age but most frequently in the third and fourth decade. However, they are commonly found in childhood, a fact often lost sight of in general diagnosis. The average occurrence in children in three large series reported and recently reviewed by Thomas, is 43 per cent. The average age of the children was seven and eight-tenths years. The youngest was only ten months of age.

The one outstanding symptom of stone is pain in the region of the stone. It is interesting to note that Barney, in 139 cases taken from records of the Mass. General Hospital, found that in only sixty cases, or 45 per cent, was there any tenderness in or in the region of the stone bearing kidney at the time of the examination. Pain in the region of the kidney is perhaps the most common result of renal stone, but it is not uncommon to have other pathological conditions such as tuberculosis of the kidney, diseased gall-bladder, mesenteric thrombosis, appendicitis and ovarian cyst, with a twisted pedicle, closely simulate renal or ureteral colic. It is also worth while remembering that a stone in one kidney may produce pain in the other. As a rule, the smaller the stone the more severe and frequent will be the symptoms. Renal colic is a result of the passing of a stone through the ureter, or to obstruction at the uretero-pelvic junction with over-distention of the renal pelvis.

Pus is the most frequent pathological element found in the urinary sediment. Blood is less commonly found and is more frequent with ureteral stone or following an attack of colic. A negative urine does not exclude stones. Barney found the urine persistently negative in 8.6 per cent of his cases. Cabot, in 150 cases, reported a persistent negative urine

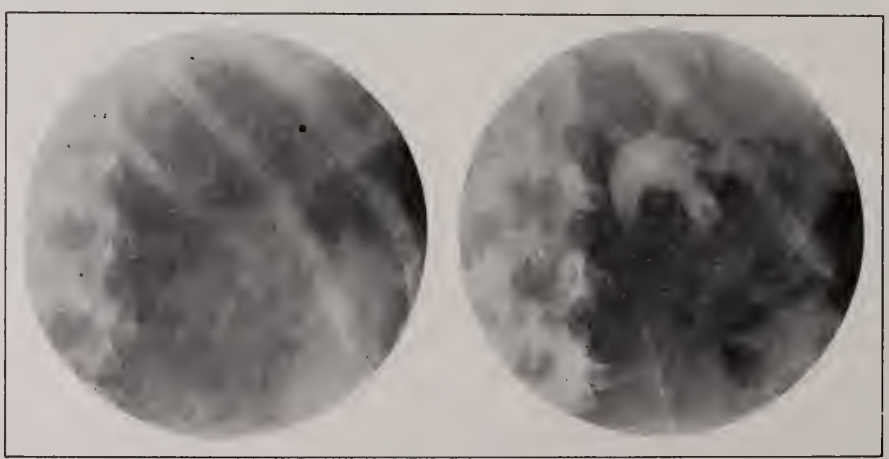


Fig. 2. (a) Shadow, left renal area.
(b) Renal stone (Pyelogram Fig. 2).

in 14 per cent. and Braasch, in 294 cases of ureteral stone, found the urine negative in 12 per cent.

If the stone has been present for some time with resultant infection, attacks of pyelitis or pyelonephritis with severe pain in the back, chills, sweats and fever of the intermittent type may result. At this stage a large quantity of pus is found in the urinary sediment.

A careful, complete history and physical examination should be made, but a definite diagnosis should never be attempted, or an operation advised, without an X-ray and cystoscopic examination. The valuable aid to be gained by roentgenographic study is so generally recognized that few patients are diagnosed without such an examination. There are, however, certain limitations. Perhaps the greater error made in roentgenographic diagnosis will result from incorrect interpretation of the shadow, than from failure to show it. Braasch claims that an accurate diagnosis of stone in the ureter cannot be made from roentgenographic data alone in more than 60 per cent of cases. Interpretation of extra-renal and ureteral shadows caused by gall-stones, phleboliths, calcified glands, etc., as stones, is perhaps the most frequent error. Only by pyelography, the use of metal ureteral catheters and the making of ureterograms can extra-urinary shadows be eliminated. Diagnosis of the presence of urinary calculi is insufficient. One must determine the number and position of the stones; the presence or absence of infection. The degree of dilatation of the renal pelvis and calyces; the presence or absence of the opposite kidney; and lastly the functional capacity of each kidney.

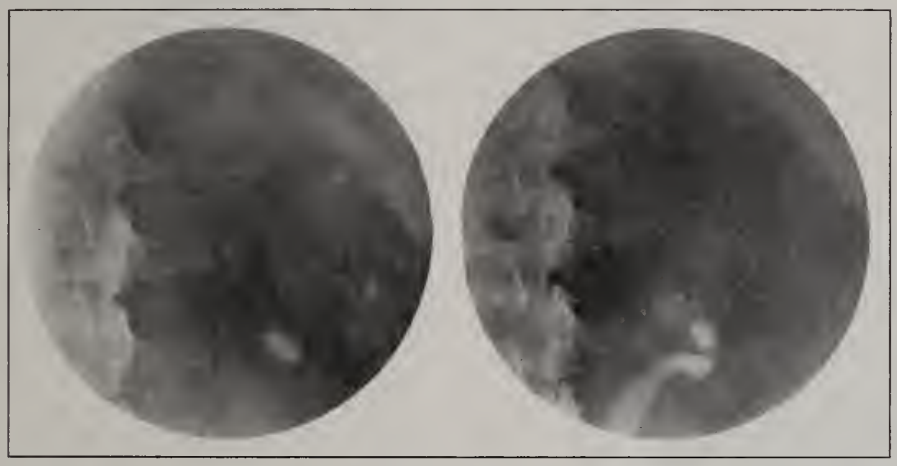


Fig. 3. (a) Multiple shadows, left kidney area.
(b) Renal stones. One impacted in ureter, causing complete obstruction (Ureterogram Fig. 3).

Treatment.

The treatment to be employed in urinary calculi depends upon several factors: 1, The size and location of the stone; 2, the duration of symptoms; 3, the amount of infection and the damage done to the kidney tissue.

As is well known, a large per cent of stones pass spontaneously. If the patient gives a short history and the stone is small it is safe and conservative to wait. Large stones, multiple stones and impacted stones require surgical intervention.

The operation of choice for kidney stones is pelviolithotomy. Nephrolithotomy has its advocates and in certain cases is definitely indicated. Often a combination of both is beneficial. By inserting a finger into the pelvis small fixed stones may be localized. Rather than run the risk of crushing such stones and leaving a small particle to act as a focus for recurrence, personal experience teaches that it is best to make a small incision in the cortex, using the finger in the pelvis as a guide. By this method the stone is removed under direct vision with less damage to the kidney than by repeatedly probing blindly with forceps. In all cases of impacted stones in the ureter of a size less than 2 cm. in diameter, an attempt to remove them by manipulation should first be made. Crowell, who devised and perfected the manipulation method, claims removal of 80 per cent of ureteral stones.

The recurrence of stones must be combated

Fig. 4. (a) Shadows, kidney and gall-bladder area. Posterior-anterior view.
(b) Gall-stones (Lead catheter, Fig 4). Posterior-anterior view.

by better technic in operating and by the removal of all possible foci of infection. X-rays should be made the day of operation and dur-

Fig. 4. (c) Gall-stones (Pyelogram Fig. 4). Anterior-posterior view.

ing convalescence. Wherever possible fluoroscopic observations should be made at the time and in conjunction with the operation. Invaluable aid is often rendered the surgeon in localization of the stones and it is the best insurance against overlooking a stone or broken off fragment. The fact that two stones may be superimposed and cast a single shadow must always be borne in mind by the operator. No doubt this is often the real explanation for so-called recurrences.

Recurrences are less frequent than formerly. Braasch and Foulds in reviewing 1041 cases found a recurrence in approximately 10 per cent. Recurrence was found by them to be greater following the removal of a single than multiple stones. Mortality from renal surgery is low. C. H. Mayo reports 937 cases operated upon for kidney stones at the Mayo Clinic with only 11 deaths or 1.12 per cent.

Summary.

1. The exact etiology of stone formation is unknown.

2. Clinical symptoms should always be checked by roentgenographic and cystoscopic study.

3. More time should be devoted to the proper interpretation of roentgenographic shadows.

4. Fluoroscopic examination at the time of operation will prevent many so-called recurrences.

5. A negative urine does not exclude the possibility of urinary lithiasis.

6. Careful consideration should be given to all possible foci of infection.

References.

Rosenow. Studies on Elective Localization. Jour. of Dental Research, Vol. I, No. 3. Sept., 1919.

Rosenow and Meissner. The Production of Urinary Calculi by the Devitalization and Infection of Teeth in Dogs, With Streptococci Form Cases of Nephrolithiasis. Arch. Int. Med., June, 1923, Vol. 31, pp. 807-829.

Barney. Recurrent Renal Calculi. Boston Med. and Surg. Jour., Jan., 1922, Vol. 186, pp. 9-14.

Thomas and Tanner. Urinary Lithiasis in Children. Minn. Med., March, 1922, Vol. 5, pp. 147-152.

Cabot. Quoted by Barney.

Braasch and Moore. Stones in the Ureter. Jour. Amer. Med. Asso., Oct., 1915, Vol. 65, pp. 1234-1237.

Braasch. The Radiograph Shadow and the Cystoscope. Surg. Gyn. & Obst., April, 1911, pp. 374-378.

Crowell. The Removal of Ureteral Stone by Cystoscopic Manipulation. Jour. Urology, Vol. 6, No. 3, Sept., 1921.

Braasch and Foulds. Postoperative Results of Nephrolithiasis. Trans. Amer. Asso. Genito-Urinary Surgeons, 1923.

Mayo. Stone in the Kidney. Ann. Surg., 1920, Vol. 71, pp. 123-127.

TREATMENT OF RECENT FRACTURES.*

By J. COLEMAN MOTLEY, M. D., F. A. C. S., Abingdon, Va.

The ever increasing number of motor cars, the modern smooth surfaced highways, and the enthusiasm of motorists for "stepping on the gas" have greatly increased the problem of handling fractures. The State compensation laws and the rather alarming increase in the number of malpractice suits have given the subject a decided medico-legal interest. As a basis for the discussion of this problem, I have reviewed the records of one hundred consecutive fracture patients treated on my service at Abingdon, Va.

We find in this group of 100 cases seventy-seven injuries classified as simple fractures and thirty-six as compound fractures. The basal fractures of the skull were all regarded as compound. The regional distribution of the fractures was as follows:

Skull—base, 12; vault, 17	29
Spine	3
Jaw	3
Clavicle	2
Humerus	12
Radius	19
Ulna	13
Ribs	1
Hand	1
Foot	5
Pelvis	1
Femur	9
Patella	2
Tibia	19
Fibula	19
Hip Joint	2
Nose	2
Total	142

Twenty-two of these people were injured in automobile accidents. Two of the four deaths were due to the same cause. It has been our experience that the treatment of fractures of long bones is largely a question of mechanics applied to well established surgical principles. It is in the management of basal fractures of the skull that we meet our most serious difficulties. It has been our practice to treat this alarming condition along conservative lines—medical rather than surgical. Basal fracture cases die chiefly from two causes: meningeal infection and intracranial pressure. In combating these conditions of course, every effort is made to sterilize the ears or the nose and throat, depending on the cranial fossa involved. For the reduction of intracranial pressure our chief weapons are spinal puncture, hypertonic salt solution intravenously, and magnesium sulphate by mouth, by bowel and intravenously. The indices to increasing intracranial pressure are a falling pulse rate, rising blood pressure, increasing stupor and delirium, and the condition of the eye grounds. We use urotropin by mouth and by proctoclysis. Whether or not it has a bactericidal effect on the cerebrospinal fluid has been called in question; but in our experience it has seemed in some way to do good. We shall not engage in any serious controversy, however, with those surgeons who claim that it is perfectly useless.

Delirium is controlled by morphine and paraldehyde. If we are unable to control intracranial pressure by the means which I have indicated, we believe that we should resort to a subtemporal decompression under local anesthesia in selected cases. Fractures of the spine with paraplegia, if seen early, we think should practically always have a laminectomy performed at once. If seen two or more weeks after the injury, with the history of immediate total paraplegia and no improvement since the accident, we believe the operation to be useless. If at all possible to avoid it, we never catheterize a broken back. If left alone, the paralyzed bladder will usually overflow. Recently we have had under observation a case of spinal injury which is perhaps of sufficient interest to warrant an abstract of her history.

Case No. 9073, a colored girl of 16 years. Fell down a flight of stairs, landing on her head. Was unconscious for a period of time which we were not able accurately to determine. Finally regained consciousness, but head was rotated to the right, her chin was depressed, and her head was fixed in this position. X-ray examination showed a dislocation of the atlas on the axis and a fracture of the right transverse process of the axis. The patient was etherized and, with considerable misgiving, an effort was made to reduce the dislocation by manipulation. This was accomplished with less difficulty than was anticipated. An attempt was then made to reduce the fracture of the transverse process, and a plaster of Paris cast was applied, including the head, neck and upper thorax. The cast was removed after one month. A recent letter from the patient states that she is quite well.

In the treatment of fractures of the mandible, one is usually able to secure good reduction and fixation by wiring the adjacent teeth together. If this fails to maintain proper alignment, the lower jaw may be wired to the

*Read before the Wise County Medical Society, June 25, 1924.

upper by swinging a wire from a lower to an upper tooth. Instead of a bandage which soon comes loose, we support the lower jaw with a moulded plaster splint. As these fractures are nearly always compounded into the mouth, a thorough and adequate mouth toilet is essential to prevent bone infection and necrosis. The dentist is often of great help to us where interdental splints are indicated. It has been our experience that fractures of the clavicle may be treated with most satisfaction to the surgeon and comfort to the patient by the use of the barrel-stave splint suggested several years ago by Dr. Royster.

Fractures about the upper end of the humerus usually result in an inability to completely abduct the arm from the side. The best time to treat this disability is when the injury occurs. The injured arm should be immediately abducted to an angle of ninety degrees with the body, and maintained in that position by some apparatus such as the airplane splint until bony union occurs. For the treatment of long bones in general a few standard traction splints such as the Thomas splint for the arm and leg are rather essential; but for coaptation splints for fractures involving the radius and ulna, the tibia and fibula, Colles' fractures and Pott's fractures, we have been able to construct splints with moulded plaster of Paris that are far more comfortable to the patient and much more serviceable than any splint that we have been able to buy for the same purpose. The splint is moulded onto each individual patient, and not only fits the limb to which it is applied, but the fractured member may be placed in any position desired and it stays there after the plaster sets. The Thomas splint, a Buck's extension apparatus and a Balkan frame for suspending the limb by counter weights and pulleys is the combination which has given us the best results in the treatment of fractured femurs. In fractures just above the knee joint where it is difficult to hold the short end of bone in accurate alignment, we have found some form of ice tongs tractor to be of considerable help. The points of the tongs are driven lightly into the condyles of the femur and traction can then be applied directly to the lower fragment of the broken bone.

If the patient with a fractured hip is over sixty-five years of age, and has albumin and casts in his urine, vascular hypertension or some equally serious complication, we think it wise to entirely disregard the fracture, and get the patient up and treat the complication. In younger people it is our custom to apply traction to the limb until muscular spasm is overcome and pain relieved. We then put the limb up in a plaster cast, in a position of abduction, according to the method of Whitman. It has been our experience that most simple fractures can be reduced and successfully treated without resorting to open operation. In conditions such as spiral fractures of the lower third of the tibia where the fracture is very difficult to reduce, we have been able to manipulate the fragments into excellent position by etherizing the patient on the X-ray table and working with the injured limb directly under the fluoroscopic screen. There are two things which I consider quite essential in the treatment of fractures: the X-ray and a general anesthetic.

Sometime ago, we had a patient brought in with a fractured radius and ulna. The man was badly gassed in France and was having pulmonary hemorrhages. We did not dare give him ether. In this case we did a complete nerve block of the forearm with novocain. The fracture was reduced with surprising ease and without pain to the patient. But generally speaking, I do not feel that I can ever properly reduce the fracture of a long bone unless we have complete muscular relaxation under general anesthesia. In regard to the X-ray: Aside from its invaluable help in the diagnosis and treatment of fractures, trial courts have repeatedly entered judgment against the defendant in malpractice suits on the sole ground that the doctor did not have an X-ray picture taken of the fracture. So from a medico-legal standpoint, the doctor must use the X-ray for his own protection.

In this series of 100 cases, we resorted to open operation seven times. This was usually made necessary by fractures about the elbow joint or the patella where there are short fragments of bone difficult to hold in approximation by the ordinary means. Generally speaking, I think we have been getting better results in fracture work all over the country since our army experience during the World War. The French taught us a very valuable procedure in the so-called debridement or mechanical cleansing of wounds. At the front, this was used chiefly in the case of wounds due to shrapnel and high explosive shells. For several years we have applied this principle to the treatment of compound fractures.

It is our custom, when a fresh compound fracture is admitted, to take the patient directly from the X-ray table to the operating room, cleanse the wound with tincture of green soap and ether followed by some chlorine antiseptic. Personally, I prefer dichloramine—T. All of the lacerated, devitalized tissue around the wound margin is then cut away by a free incision. The bone fragments are then placed in apposition and, if necessary, sutured together with kangaroo tendon or heavy chromatized catgut; and loose, detached fragments of bone are removed. The wound is then closed without drainage. I think everyone tries to avoid burying any non-absorable material, such as wire or metal plates, in a wound of this character. Of course, as in all clean bone and joint surgery, the most rigid instrumental technique is followed. In practically all of these cases we have been able to secure primary union of the wound; and the compound fracture has thus at once been converted into a simple fracture. This simple procedure has added immensely to the comfort of the patient and greatly shortened his convalescence.

In regard to prognosis: Unless it is associated with a serious injury to some vital center of the body, such as the brain, or unless some fatal complication develops, fractures are crippling rather than killing in their effects. So the surgeon's energy and ingenuity may be directed largely toward the prevention of crippling deformity and impaired function. Fractures occur mostly among laborers in public works who constitute a rather floating population, and it has been difficult for us to keep in touch with all of our cases through our follow-up system. So far as we have been able to hear from them, our results have seemed to be quite satisfactory. As a general rule, in fractures involving the joints we should be rather guarded in our prognosis as to complete restoration of function. Children with fractures about the elbow joint, if the fragments are placed in apposition and the joint kept free from infection, practically always get remarkably good functional results. An adult with the same sort of injury should be advised that he may have some permanent limitation of motion in the elbow.

In the 100 cases reviewed there were four deaths. This mortality is perhaps a little higher than the general average for fractures. But it should be remembered that it is the more serious fractures and the complicated cases that are sent to the hospital. The simple cases are treated at home or in the doctor's office. It has been our experience that we learn most from a critical analysis of our failures. The ninety-six cases who recovered do not interest us so much as the four who succumbed to their injuries. With this thought in mind, I shall give a brief synopsis of the history and clinical course of the four fatal cases in our series.

Case No. 6956. Admitted with injury to head of thirty hours' duration. Was struck on right side of head by rock the size of adult fist, thrown with all the force of a strong man. Patient fell to the ground and did not speak for several hours. Bled from nose, mouth and right ear. Except for a few lucid moments during the following night, the patient had been unconscious since injury. On admission temperature 97, pulse 60. Left arm flaccid. Pupils equal and reacted normally. No facial paralysis. Clinical diagnosis of fracture, simple right temporo-parietal area extending into base, middle and anterior fossae; confirmed by X-ray. Roentgenogram did not show marked depression. Ice cap. Morphine to control pain and delirium; magnesium sulphate by mouth; spinal puncture and 100 c.c. hypertonic salt solution intravenously. Spinal fluid showed blood. Few bacteria. No intracellular diplococci. Next day, right side face and left arm paretic. Pulse 42. Spinal puncture and intravenous hypertonic salt solution repeated several times. Died on fourth day of acute respiratory paralysis. In reviewing this record, it seems quite evident that the patient died from tremendous intracranial pressure. A prompt decompression operation would possibly have changed the final outcome.

Case No. 6983. Admitted one hour after automobile accident. Hot water bottles, hot blankets and morphine on X-ray table to combat shock. Multiple compound fractures left tibia and fibula; simple comminuted fracture left femur; deep lacerated wounds face and nose; multiple contusions and abrasions; traumatic shock. Wounds of face sterilized and sutured; fractures reduced; open wounds of leg sterilized and dressed; leg put up in moulded plaster splint; and fractured femur put up in Thomas' splint and suspended on Balkan frame. Did pretty well until midnight of following day when pulse suddenly became very rapid and weak; there was free diaphoresis; vomited old blood; there were clonic spasms of the upper extremities and fixation

of the jaws. He was given digitalis intravenously, 400 c.c colloid solution into the veins, and a hypodermic of atropine. Pulse disappeared, temperature 105 degrees by axilla, and death soon followed from cerebral embolus. I think this might fairly be regarded as an unavoidable death.

Case No. 7694. Admitted one hour after automobile accident. A Studebaker car had turned over on the man and his head had been caught under the motor. The gasoline receiving spout on the tank had crashed through the left orbit and completely destroyed the orbit, driving the eyeball back into the brain. On admission the patient was semi-conscious, bleeding from nose and mouth, and vomiting quantities of blood. Bleeding was profuse from the injured orbit. The hemorrhage from this source was so severe that the primary indication seemed to be to stop it. Accordingly the wound was quickly sterilized and packed with dichloramine—T gauze. The usual treatment was instituted for basal fracture which was obviously present. In spite of the packing, he bled through his nose most of the night and his pulse went up to 100. At midnight, 10 c.c. of coagulose was given subcutaneously. Two days after the injury, the man had improved sufficiently to encourage me to attempt to remove the mangled and eviscerated eye. This was done under local anesthesia and the eyelid removed from the interior of the skull and sutured back in its normal place. That night the man became wildly delirious. Pulse came down and blood pressure and temperature went up. One ounce of magnesium sulphate every four hours per bowel, and 1 drachm paraldehyde were given and spinal puncture was done. Patient died of meningitis two days following the operation. In this case it would seem that the operator's surgical judgment was at fault in electing to remove the eye two days after the injury. If it is at all possible, an eye injured in such a manner should be removed at once. If immediate operation is contraindicated, as it was in this case, it would seem wise to wait several days until the patient has built up a certain amount of immunity and Nature has, to a certain extent, walled off the injured brain from infection.

Case No. 6991. Admitted to the hospital at 3:25 P. M. At 8 A. M., same day, while working in a rock quarry, a large stone fell about eighty feet from the side of the cliff and struck the man on top of the head. He was totally unconscious from the time of the injury. Very extensive compound fracture of skull, extended into the middle fossa of the base. Bleeding occurred from nose, right ear and into right orbit. Brain tissue oozed from right ear. Head dressed. Lumbar puncture. Almost pure blood. 100 c.c. saturated salt solution intravenously; morphine; urotropin by bowel. Partial hemiplegia left side. Died 10:30 A. M. the next day. Considering the history of this patient's accident, it would seem that he, also, had a right to die.

Conclusions

1. The increasing number of fractures due to automobile accidents, the compensation laws and the country-wide epidemic of malpractice suits have given the subject of fractures a greatly increased medico-legal interest.

2. Excepting the toll of the automobile, the great majority of fractures occur among the laboring classes of people who can ill afford to lose time or suffer permanent disability. Whatever we can do to return these cripples to the ranks of producers and wage earners is well worth our serious effort.

3. In the treatment of compound fractures, debridement and primary suture of the wound markedly lessen the period of disability and add to the comfort of convalescence.

4. In the treatment of fractures, eternal vigilance and minute attention to detail is the price of success.

George Ben Johnston Memorial Hospital.

THE SIGNIFICANCE OF SOME EARLY UROLOGICAL LESIONS.*

By W. O. POINDEXTER, M. D., Newport News, Va.

In this paper I will not attempt to give any new or heretofore unknown facts. Due to the frequency with which we see urological lesions that have progressed to an incurable or dangerous condition because early symptoms have appeared to be so trivial or transient that the true condition was overlooked, even though our improved laboratory methods and instruments of diagnosis probably enable us to make a more correct, positive and localized diagnosis than in many other branches of medicine of the internal organs; and because these far advanced urological lesions often present such a pitiful and hopeless condition, accompanied by such untold suffering, I will attempt to

*Read at Annual Session of the Walter Reed Medical Society of Virginia, at Newport News, Va., May 15, 1924.

consider briefly a few of the more important early symptoms.

The matter of first importance in studying the cause of any urological symptom or lesion is to get a complete history and make a thorough physical examination, especially looking for tuberculosis, syphilis and focal infections.

Usually the first and probably the most common symptom we have to deal with is some derangement in the act of urination. Here I wish to say a few words in regard to the physiology of the normal act of urination which is not absolutely definite. Langley and Anderson have shown that the bladder in cats and dogs receives motor fibers, first from the second to fifth lumbar nerves, these fibers passing through the inferior mesenteric ganglion and reaching the bladder by way of the hypogastric nerves, and second, from the second and third sacral spinal nerves, reaching the bladder by way of the hypogastric plexus. Galtz established the general principles of the vesicle reflex. He pointed out that gradual distention of the bladder induced gentle contractions. These expressed several drops of urine into the posterior urethra, causing thereby a sensory stimulation. Thus the afferent part of the reflex, aroused the efferent impulse by which the bladder is made to contract vigorously and the sphincters to relax. Thus it was established that the act of urination is a reflex phenomenon, complicated, however, by the fact that this reflex is very completely under the control of the will.

After understanding the mechanism of normal micturition, we can better interpret the pathological findings.

Difficulty in the act may vary from a diminution in the size of the stream to a complete obstruction, either of which may come on gradually, depending upon its cause, which I might say is quite variable. Beginning with the urethra we should first determine the presence or absence of stricture: also foreign bodies such as calculi or polypi or other miscellaneous foreign material that may be introduced from without, such as hair pins, rubber catheters, etc.

Here I would like to emphasize the fact that in many women, especially past thirty-five years, suffering from frequency and tenesmus is found, with more or less discomfort over bladder region where you are unable to find any pathological condition for its cause, except what may be called a contraction or partial stenosis of the urethra. Many of these cases apparently clear up following dilatation of the urethra.

Following cystoscopy to determine the cause, a great many of these women clear up due to the dilatation resulting from the passage of the cystoscope.

After the urethra examination we should then make a rectal examination of the prostate gland, noting any abnormality in size, shape and consistency. Here we must not forget to remember that the encroachment on the sphincter is not always in direct proportion to the size of the gland and we may have a very definite prostatic obstruction without any marked palpable enlargement of the prostate as determined rectally.

The cause for painful, burning urination may be local or from some constitutional condition, causing a change in the chemical composition of the urine such as fevers or diabetes. Among the local causes may be mentioned obstruction, urethral or vesical calculi, inflammations of the urethra and bladder, cystitis except traumatic from instrumentation, catheterization, etc. These are usually secondary to infection elsewhere, and we should not be contented until we have found their origin either in the lower or upper urinary tract, or in some focus outside.

The foundation of urology is urinalysis. The practice of urinalysis is two-fold; laboratory urinalysis and clinical urinalysis. A complete laboratory urinalysis consists of:

(1) Clinical and physical examination.

(2) Microscopical examination of the centrifugal sediment of the bladder urine obtained by catheter or by the two glass method.

(3) In certain cases a comparative examination of "night" and "day" urine.

Clinical urinalysis consists in looking at the urine and interpreting what we see therein.

Pyuria or pus in the urine is probably one of the most frequent urological symptoms and at the same time one of most vital importance. We will exclude pyuria of acute urethritis, which with the other symptoms of acute inflammation is self-evident, and consider the more chronic types.

When pus is found in the urine, much information can be had by the two-glass test, which suggests to us whether the pus is coming from the anterior urethra, or from the posterior urethra or prostate.

After a thorough examination of the urine, always a catheterized specimen in the female

and a stained prostatic smear in the male, fails to reveal the source of trouble, a cystoscopic examination is called for.

In the bladder we should look for diverticulum, which very often keeps up a persistent pyuria, tumors complicated by infection and foreign bodies such as stones or other bodies that may have been introduced from without. Not being satisfied with the findings in the bladder, we must next investigate the ureters and kidneys.

When pus or pus and blood is found coming from the ureters, we have just begun the examination, and the work from now on is to determine its cause. This we can do by function test of the kidney to determine the amount of damage to the kidney structures; and we can also examine the pus to determine the type of infection we are dealing with.

When the condition present is not clearly diagnosed then we should have an X-ray picture of both kidneys, ureters and bladder before and after the injection of some opaque media, such as sodium bromide solution, to determine the presence of a stone, a dilated or kinked ureter, a dilated pelvis, renal destruction or new growth.

Hematuria, like hemorrhage elsewhere, is only a symptom and should be considered accordingly. It is always pathological and never physiological, even though its presence may be detected only by microscopical examination. It arises from a great variety of causes and may come from any part of the genito-urinary tract. If the bleeding is due to an inflammatory condition, it is usually characterized by pain and pus will be found in the urine. But otherwise hematuria is rarely accompanied by much discomfort and is generally intermittent in type.

The importance of its presence, therefore, is apt to be underestimated not only by the patient but also by the physician, in spite of the fact that the presence of blood may indicate a serious lesion in the uro-genital tract and should be considered as a very important diagnostic sign. For example, the bleeding from a papilloma or a malignant disease of the bladder is often the first and only symptom of these lesions and intervals of months or even years may elapse between bleedings. The patient in the meantime has acquired a false sense of security, believing that he has been entirely relieved, only to find on the recurrence of hemorrhage that his disease has progressed from one that may have been relieved to one of an incurable condition.

Before a final decision is made that the source and cause of the bleeding is in the urinary tract a careful history should be taken and a complete physical examination made, for in some cases of hematuria the cause is due to some pathological condition outside the genito-urinary tract.

The ingestion of certain drugs such as urotropin, cantharides, phenol. etc., may give cause for the bleeding. Acute and chronic febrile diseases such as the fevers, may be causes.

In cases of scurvy, purpura, leukemia, pernicious anemia, septic infarct and parasitic diseases, blood may appear in the urine. In some conditions such as appendicitis, cholelithiasis, demanding surgical intervention, we may have blood to appear in the urine.

But I might say, in spite of the above, hematuria is usually due to a lesion somewhere in the uro-genital tract. This lesion may be situated anywhere from meatus to kidney capsule, and while it is true that the cause of the bleeding can not always be determined, even with modern facilities, its source can usually be identified.

If blood appears at the termination of urination or so-called terminal hematuria, it is suggestive and nearly always diagnostic of a lesion within the urinary bladder. If blood appears at the meatus, its presence would indicate a lesion somewhere anterior to the sphincter muscle. The presence of blood mixed with the semen would suggest a lesion probably in the seminal vesicles or prostate. If the bleeding follows a true attack of kidney colic it would be suggestive of a lesion above the bladder.

By the two or three glass test we can probably tell whether the blood comes from the anterior urethra or beyond. When, however, it is uniformily mixed with the urine, its source can easily be detected by cystoscopic examination in most cases. Hematuria of either vesical or renal origin may be continuous, but usually it is intermittent, and if on cystoscopic examination the source can not be localized in the bladder, then ureteral catheterization is called for. It must be remembered that renal hematuria can only be detected when it is active. If not bleeding at time of examination, then it is necessary to re-examine during its active stage.

It should be borne in mind, however, that the presence of some red blood cells in the urine or even a hemorrhage after ureteral catheterization may be due to traumatism by the catheter and thus will not be a true diagnostic index. For this reason ureterograms and pyelograms should be added to establish the diagnosis. Probably the most common cause of hematuria is a growth somewhere in the genito-urinary tract.

Hinman in analyzing 709 cases of renal bleeding found that hematuria had been the initial symptom in forty-two per cent and was the only symptom in seven per cent.

Israel reported hematuria to have been the first symptom in seventy per cent of sixty-six cases.

Braasch reported eighty-three cases hypernephroma in seventy-seven per cent of which bleeding had been present for a year before other symptoms precipitated treatment.

In a series of 100 cases, Chute found sixty-four per cent due to new growths and fifty per cent of these were tumors of the bladder.

Walther reported seventy-four cases hematuria of which fifty-one per cent were due to tumors, seventy-two per cent of which were malignant; nine per cent were caused by calculi; seven per cent due to renal tuberculosis; and in four cases the condition was diagnosed as "essential hematuria."

Hunner believes that stricture of the ureter causes hematuria more often than is realized and that nephritic processes are often due to stricture.

There is a certain group of cases, and these comprise many of the so-called "essential hematurias," in my opinion, where the bleeding is caused by angioma, or varicosity of the papillae, papilloma of renal pelvis, and in some cases by vascular distention, due to mechanical rupture of blood vessels resulting from injury caused by some circulating injurious agent.

Thus, hematuria from the uro-genital tract may be a symptom of almost any pathological condition within that tract; therefore, the presence of blood in the urine must be considered as an imperative indication for the application of every diagnostic measure at our command to locate the primary source of the bleeding, and no case should be classified as one of "essential hematuria" until every diagnostic measure has been applied without avail.

138 *Twenty-eighth Street.*

BETTER OBSTETRICS: HOW SUCH MAY BE OBTAINED.

By BURNLEY LANKFORD, M. D., Norfolk, Va.

Is not the medical profession as a whole ashamed of the numerous statements appearing during the last few years in medical literature, to the effect that child bearing is only a little less dangerous to women than tuberculosis or cancer; that only two civilized nations have a higher obstetric mortality than the United States (Spain and Belgium); that 16,000 women die annually in these United States as a result of pregnancy, most of them from preventable causes; that it is safer for a woman to have her baby attended by a regulated midwife than by one of our honored profession?

Such statements are beginning to find their way into the lay press. Can they be true? If they even approximate the truth, is it not high time that we, the medical profession and allied agencies, do something radical to change conditions that make such statements possible?

The report of the special committee from the American Association of Obstetricians, Gynecologists and Abdominal Surgeons on *Maternal Welfare*, headed by Dr. Geo. Clarke Mosher, of Kansas City, and read before that body last September, will show any one who will take the time to read that report (published in March issue *Amer. Journal of Obs. and Gyn.*) that the above statements are true. A little searching of the vital statistics bureaus of the several states will show the same.

It must be that thousands of earnest medical men and welfare workers are thinking along this line, and there are hopeful signs appearing on the horizon that augur well for the prospective mothers of this country. The enumeration of such signs is beyond the scope of this paper, but suffice it to say that such agencies are at work and are already bearing fruit. The midwife problem is being dealt with, and hopefully, but neither will that be discussed at this time. What we are now thinking of is the part that the regular medical profession is playing, and should play, in this near tragic drama.

Destructive criticism rarely accomplishes good, unless it be accompanied, or followed shortly, by something constructive. It will not set forward the day of better obstetrics simply to say that it is safer for a woman to have her baby alone or with a regulated midwife in

attendance than with one of us; that probably 90 per cent of women, if left alone, without doctor or midwife would deliver themselves safely, albeit with much unnecessary travail and pain. It is for us to set as our aim and object the saving of that extra 10 per cent, the amelioration of unnecessary pain, and the lessening of the difficulties of the 90 per cent. If so large a per cent of women can deliver themselves without our assistance, how can we warrant the confidence imposed in us by the women who continue to commit themselves and their unborn children to our guidance during pregnancy, and to our care during labor? How can we as a profession continue to make ourselves worthy of this trust? We must develop in every community a sufficient number of physicians to care for the obstetric needs of that community. These men must be qualified for that work—1st, by temperament: 2nd, by training and experience; 3rd, by the possession of the time available that is an essential for good obstetrics.

There is no question but what a certain temperament is needed by any one who would do careful obstetrics and one of the chief characteristics of such a temperament must be patience. A physician who cannot wait (without sleeping or swearing) ought not to go into obstetrics. This capability for waiting must be coupled with the ability, courage and judgment to interfere, to become active, when, in the best interests of the patient, waiting should be changed into activity.

The love for this kind of work should be inherent in the man who would do it well, or else that love should have come to him gradually, from years of general practice, wherein he has found himself gradually and willingly drawn to it.

For the practice of good obstetrics, or for the improvement of the quality of obstetrics practiced in any community, those who are to do it should have had adequate training. This cannot be had from lectures and textbooks alone, but must have come from actual bedside experience, preferably moulded and guided by good teachers. The accumulated experience of master observers, teachers, can be partially passed on to others, and such should eminently be the case in the acquisition of obstetric ability. By training under such teachers and in the presence of actual bedside work, obstetric poise and judgment may be much more rapidly and accurately acquired than when such experience has to be accumulated through years of lonely, individual, undirected work; in fact, the desired ability may never be obtained by such method. Fortunately, teaching centers are now available in many cities, where careful obstetrics is not only practiced but also taught to both students and post-graduates. At these centers, all who will may increase their knowledge, improve their technic, broaden their experience—in short, make competent obstetricians of themselves. All that is essential is the obstetric urge.

The training and experience needed to justify a physician in offering his services to the public as a properly qualified obstetrician must be acquired in one of two ways: either he may choose obstetrics directly after graduation from medical college and perfect himself by a sufficient apprenticeship in maternity hospitals, under good teachers; or he may go into general practice, and after a number of years—during which he has acquired some catch-as-catch-can experience, and having found himself drawn to obstetrics—he may leave his general work, and spend sufficient time in study to acquaint himself with the best obstetric thought and practice of his day. A sufficient number of physicians developed by either method will tremendously raise the standard of obstetrics in *this* generation. Those developed by the first mentioned process will be better qualified to act as teachers of the next generation; those by the second process can be the means of making obstetrics what it should be right *now*.

This brings us to the question of the time that must be available to the doctor who would do good obstetrics, or who would limit his work entirely to that, the presumption being that by so limiting his work he could and would do better work. It is probably true that the chief reason why the practice of obstetrics is so inefficient is that the men in general practice do not have the necessary time, and they are the ones who have to do the bulk of obstetrics throughout the country.

How can the general practitioner give the time, attention and thought to a difficult confinement when he is harassed by dozen different kinds of cases demanding his attention the same day, knowing that his office work is impatiently waiting, or that he has five or ten

calls to make before he can get to his supper or his bed; or, if up the greater part of the night, knowing that he cannot sleep the next morning but must make his calls and get to his office? The same man when he gets to his office may find six patients waiting, one of them a young primipara, to whom he does not have the time to give the instruction that she needs, nor to answer the questions that have occurred to her and upon which she should have enlightenment. Is it any wonder that physicians so situated seldom have the time to give the women of their communities their best obstetric services?

Now, contrast the work of those who have limited their practice to obstetrics. There is only one type of emergency and that is a patient in labor. Suppose the doctor is called from his office to a delivery or to some other obstetric emergency? Any prenatal or postnatal cases who happen to be in his office know why he has to leave, and none of them objects, none of them cannot or will not return the next day; his entire clientele is composed of such cases and he does not have to worry over neglected or unsatisfied office patients. Or, suppose he is detained with a confinement during his office hour? He simply has to telephone his office to let those who may happen to be there know why he is absent, and to have his nurse let those know who are due at his office that day. Suppose he finishes with a case at five or six A. M.? He may go home and sleep until ten. Thus he has more time for attention to his deliveries, for proper prenatal and postnatal observation of his cases, for his own reading, rest and recreation.

The ideal situation, both from the standpoint of the obstetrician and also for the best interests of the public, is that two physicians should associate themselves in this work, although not necessarily in a partnership. Each may have his own personal clientele, but it should be understood when the patient comes in the first time, to engage either of them, if that one should be out of town, or temporarily unavailable, the other one will attend her at labor. Two such physicians could have the same office with different hours, and such an arrangement would leave each of them with initiative and stimulus to build up his work, and to depend mostly upon his own efforts, but at the same time his expenses are halved, and he has more time for attendance on medical societies, without undue anxiety about his work; more time for short trips, to clinics, etc.

How may physicians be interested sufficiently to go into obstetrics either directly from the hospitals, or from a general practice? Those men to whom the financial returns are essential must be assured of an adequate income to warrant the giving up of general practice, or to warrant going into obstetrics from the beginning of their medical careers. Some men from both classes will have sufficient outside income to assure them a living, and to such the inward satisfaction of limited work must appeal. They must be shown the need for their services, how they can make their lives and efforts count in raising the standard of obstetrics. They must be reminded that in no branch of medicine does the doctor have the love of his patients to as great an extent, unless it be in pediatrics; that it more nearly approaches the status of the family physician than any of the other specialties; that it deals with the bringing of life and happiness, and is far less associated with death and sorrow than general work.

What obstetrician does not recognize and almost daily experience the joy expressed in Edgar Guest's poem, "It's A Boy!" and who, having been present at a successful birth, has not felt the happiness expressed in this verse of that charming poem by Elizabeth Hepburn,

> "No seer's prophetic dream,
> No star in all the skies,
> Burns with a luster half so bright
> As happy mother eyes."

The physician contemplating obstetrics as his life work must not let his confreres frighten him off with the accusation (often expressed) that he will be nothing more than a male midwife! Let him remember that the American College of Surgeons recognizes obstetrics as one of its main departments, and that there is plenty of room for surgery and the use of surgical principles; if he be inclined to surgery and qualified therefor, he may combine gynecology with obstetrics.

The general practitioner who loves obstetrics, but who must make a living and who fears to give up his general work, as well as the younger man, fresh from the hospitals, who has his living to make, can be assured that if they "deliver the goods," the remuneration will be sufficient for their needs. This has been proved time and again and only needs the exercise of faith to prove true in the experience of those who have dared put it to the test.

A spirit of co-operation must be developed between the other members of the profession and those who would do obstretrics alone, or as the major part of their work. Where such co-operation can be obtained there will be work enough for all, and a better class of work, accomplished under more pleasant conditions.

The latest obtainable figures from the U. S. Census Bureau show that there is in the average communities one doctor to every 500 of the population; that there are twenty-five births per year to each 1,000 of population. Thus, in a city of 100,000, there should be 2,500 births per year and 200 doctors. These 200 will include all the specialties and there should be twenty who would devote their time to obstetrics. This would average 125 cases per year, which would keep them busy and enable them to do *all* the obstetrics of the community, thus eliminating the midwife. A certain per cent of the 125 will, of course, be clinic or charity material, because the poorer classes will have to be cared for; they deserve as much care during labor, and should have as close observation during the prenatal and postnatal periods as the well-to-do, *if* we would raise the standard of obstetric results throughout the country.

In the care of the poorer and clinic classes, the doctor would be assisted by nurses from the various welfare organizations, and, in the teaching centers by medical students. Such help will relieve the doctors of much of the drudgery connected with home obstetrics.

The question of fees may be briefly discussed just here. Considering the length of time given, and the risks involved, there is probably no part of the general practitioner's work for which he is so poorly paid as his obstetrics. This may be partly his own fault, part he may have inherited from his professional forbears. All communities should be educated to the importance of safer obstetrics, and to obtain such, the fees paid must be more in keeping with the value of the services rendered. At the same time, what we may call the non-participating part of the public would be learning that the poorer classes should have better attention and that more adequate means should be provided in the way of prenatal centers, skilled home nurses and more hospital beds devoted to the use of lying-in women. This same idea or plan can be extended to the smaller cities and even to townships and villages, where the several practitioners could refer the village and surrounding county obstetric work to one of their number more especially fitted for it. If the doctors who despise obstetrics, yet who feel they have to accept such cases in order to keep the family practice, care to do so, they will rid themselves of what they consider a nuisance, for they will at the same time gain in general work from the general work given up by the men who will limit themselves to obstetrics, so that, in the end, no one will be the loser. The question involved in the above paragraph, and the solution suggested, would seem to be one of the most important connected with this whole matter of better obstetrics and how obtained.

The establishing of proper fees for special work would have to be worked out by various communities for themselves. It has always seemed to me that the most satisfactory plan is to have a minimum standard fee that will give the obstetrician a fair return, and that will not be prohibitive or a hardship for the clientele of that particular community. This minimum fee should be based upon the services rendered for the normal case, and should be so stated to the husband who should understand clearly that should the conduct of the case demand unusual time, or skill, or anxiety, there will be an extra charge. The flat minimum fee plan will allow a much closer co-operation between the doctor and his patient than where a charge is made for each office call, each visit to the home, each examination of urine, each post partum visit, etc. The patient of restricted but adequate means will be more likely to limit her visits to her doctor's office if she knows she has to pay for each visit there; and thus golden opportunities for prophylactic measures may be lost. She will be less likely to use the telephone in reporting unusual or untoward symptoms if she knows she will be charged for each 'phone call. The question of money will inevitably be more to the front, and will make the "*rapport*" between doctor and patient less cordial than where the thought of money can be largely eliminated. On the other hand, the physician will find himself looking after his patients more frequently if he feels that he is not laying himself open to the criticism of making unnecessary visits, or demanding unnecessary office visits from his patients. Everything that will make for pleasant relations between the profession and the

public will certainly help to bring about a rise in the standard of obstetrics.

A constructive suggestion in the effort to improve the practice of obstetrics is that more general medical societies should devote sectional meetings to obstetrics and pediatrics combined. More obstetricians and more doctors interested largely in obstetrics should seek and obtain admission to the larger sectional or national obstetrical societies, the attendance on which invariably sends a man home with renewed vigor and aspiration as well as additional knowledge.

A minimum standard of obstetric care should be established by our profession, such as could be attained by all who offer for or accept obstetrical cases. If, after a fair lapse of time, it be found that we, as a profession, are not living up to that standard, the public should be taken into confidence, just as it has been in the standardization of surgery and hospitals, which has been brought about with such good results during the last few years.

400 *Fairfax Avenue.*

REPORT OF ONE HUNDRED AND SEVEN CONSECUTIVE LAPAROTOMIES FOR PELVIC DISEASE IN WOMEN.*

By GEORGE H. REESE, M, A., M. D., Petersburg, Va.

This paper is based on a series of one hundred and seven consecutive abdominal operations performed in the Petersburg Hospital, for pelvic diseases of women, during a period ending August 19, 1924.

In this series are found:

16 cases of uterine fibroids,
4 cases of ovarian cysts,
7 cases of ectopic pregnancy,
2 caesarean sections,
2 cases of uterine retroflexion,
74 cases of salpingitis,
2 cases of diffuse suppurative peritonitis.

As a great deal of the associated pathology found in these cases has been reported before this society in a previous paper, it will be omitted here.

This record was completed with an operative mortalty of one. This case of diffuse suppurative peritonitis of tubal origin died the morning following incision and drainage. She was urged to submit to operation a month before, but refused until thoroughly septic.

A case in which a supravaginal hysterectomy for multiple fibroids was done dropped dead shortly after returning home.

As to morbidity, one case operated on about two years ago for fibroids returned recently with a cervical carcinoma. Two others have returned with complaints; one of a right ovary which I punctured and left instead of removing; the other with pain at the site of a ventral fixaton, following an operation for salpingitis.

This is the sum of mortality and morbidity to date, as far as I have been able to determine.

A point in connection with this report, which is of great interest to the writer and might be emphasized to advantage, is that none of these cases of ectopic pregnancy was either seen or operated on by him, while in a state of acute shock. One was unruptured and of course presented no severe symptoms. All the others gave the usual history of missed periods, pain, shock, hemorrhage, etc., in varying degrees of severity. In several, the symptoms and signs were so mild and remote as to leave the diagnosis in doubt. In the severer cases the important point is that all had rallied.

This has been extremely interesting in the light of statements by Warbasse and Ashton, that "Statistics show that the mortality among patients operated upon during the acute depression incident to hemorrhage and shock is about fifty per cent; and that among patients operated upon after hemorrhage has ceased, the mortality in skilled hands is less than five per cent.

"Of patients treated by rest and the general constitutional measures employed in internal hemorrhage, in about ninety-five per cent the bleeding will stop and the patient recover from the immediate dangers of hemorrhage and shock.

"It is obvious that not to operate at all gives the patient a better chance for life than to operate during the stage of acute depression.

"Most of these cases are seen by the surgeon after the bleeding has stopped and the patient is recovering from the shock. When it is apparent that the pulse is growing stronger and that hemorrhage is not progressing, the surgeon should wait until the condition of the patient has improved to a point at which operation can safely be done. On the other hand, when the surgeon sees the patient at a time when hemorrhage is going on, he stands in a position in which judgment born of experience

*Read at the meeting of the Southside Virginia Medical Society in Richmond, September 16, 1924.

is of the utmost importance. If the patient is now operated upon the hazard is very great. Will the bleeding stop spontaneously and how soon?

"It is possible for the bleeding in about five per cent of the cases to go on and kill the patient. Is this particular case of this class?

"As a general plan of procedure of the average surgeon, spontaneous stoppage of the bleeding should be waited for. This is the general rule for general guidance. As an exception to the above rule, the surgeon of skill and experience in abdominal surgery, who can surround his patient with every measure for preventing shock, should operate at once if the evidences of progressive bleeding are present."

This long quotation from Warbasse has been adopted because it seems to cover the situation, and because of a seemingly prevalent belief in much of the medical and surgical world that all of these cases, without exception, must be operated upon immediately if the patient is to have a chance of life. That this is a very erroneous conception is readily apparent in the light of the above quoted statistics.

All writers agree that there is a certain class of these cases, which Ashton terms the cataclysmic, which when seen in a state of profound shock, with evidence of continued bleeding which does not respond shortly to treatment, should be operated upon without further delay. But, to promulgate the principle, as most of the older writers did, and some still do, of operating on all these cases as soon as the diagnosis is made, regardless of the condition of the patient, seems, in the light of more recent evidence and of modern methods of dealing with hemorrhage and shock, a procedure too radical for general acceptance.

Why, it may be asked, should blood extravasated within the abdominal cavity from a tubal pregnancy create so much more apprehension as to its ultimate results than an equal quantity of blood lost in the same time from any other source? And further, why should not these cases receive the same benefit from the usual treatment of shock and hemorrhage that other shocked and hemorrhagic cases receive?

In severe bleeding from a severed artery, in ordinary abortion, a pulmonary or a typhoid case, or from any other source, the hemorrhage generally stops when the blood pressure is sufficiently lowered. This is one of nature's well known ways of controlling hemorrhage.

It would seem, in view of the above statements, that this class of cases offers an attractive field for repeated pulse and blood pressure records and hemoglobin estimates, together with the administration of morphine and atropine, saline and adrenalin; and, better still, a blood transfusion—in short, for such measures as are advised and which experience has shown to be almost invaluable in other hemorrhagic conditions of equal severity. Most of these can be done quickly, and should never be omitted, while preparations are being made for an operation, which should not be performed immediately, unless the patient fails to rally.

Such a procedure is entirely feasible and, under any circumstances, highly desirable. If uniformly practiced, it would doubtless save many women from the vicious ordeal of undergoing a major operation while in a state of profound depression.

BIBLIOGRAPHY.

Warbasse. Surgical Treatment, Vol. III, Page 436.
Ashton. Gynecology, Sixth Edition, page 576.
Keene. Surgery.
De Lee. Obstetrics.
Crile, Geo. W. Differentiation Between the Quick and the Dead. Iowa State Med. Jour., July 10, 1924.
Dudley. Gynecology.
Rost. Pathological Physiology, page 166.

3 *North Adams Street.*

INTRACRANIAL HEMORRHAGE IN THE NEW BORN.*

By JOHN O. BOYD, M. D., Roanoke, Va.

This condition has been recognized in the fatal cases and has been studied as the spastic end result for a long time, but it is the acute stages of the smaller hemorrhages that I want to bring to your attention. We all realize that there exist and, in fact, we see many cases of physical impairment and mental retardation which are undoubtedly the result of intracranial hemorrhage at birth that, had they been recognized and properly treated, might have been relieved of much of their suffering and permanent deformity.

The marked difference in the cranial anatomy of the new born babe from that of the adult very probably is a factor in the occurrence of intracranial hemorrhage in the new born. A recent article by Dr. William Sharpe clearly shows the difference.

*Read before the Southwestern Virginia Medical Society at its meeting in Marion, September 11 and 12, 1924.

Dr. Sharpe[1] writes, "Brindau, Cushing and others have observed that the number of supracortical veins running from the pia-arachnoid to the sinuses are free and unsupported by any connective tissue or dural coverings, thereby rendering these vessels more liable to rupture: they are most numerous in the parietal and frontal regions and are grouped in the immediate vicinity of the sutures, especially frontoparietal and sagittal. The diploe is absent until the second year of life. Browning had demonstrated that Pacchionian bodies are not present at birth and are a matter of postnatal development, probably not completed until about the twentieth year. The middle meningeal artery usually runs vertically up the squamosphenoid suture instead of backward and it divides into three branches instead of only two. The Rolandic area lies adjacent and immediately posterior to the coronal suture and runs parallel with it. The fontanelles are covered with two main layers only, the skin and superficial fascia constituting one layer, and the other, the membranous interosseous layer, is composed of fused periosteum and dura, and it is impossible to separate them.

Etiology

Intracranial hemorrhage in the new born is usually from three main causes, and at times two or more might act jointly to cause the hemorrhage or be an agent to increase the size after the hemorrhage had once started.

The etiological classification is (a) trauma; (b) asphyxia; (c) blood disease of the new born.

(a) 1. Dystocia, which may be due to maternal, fetal or placental causes.

2. Rapid or precipipate delivery.

3. High forceps.

4. Breech presentation.

5. Pituitrin. To divert a little from this subject I want to say a word about this remedy. In my opinion the improper use of pituitrin causes more injury in obstetrics, both to mother and infant, than any other agent we have at hand. When given in a case of labor where for some reason labor is not progressing as rapidly as it apparently should, we have very much the same condition existing as the improper use of forceps. The rapid and harder pains cause a quicker moulding of the head and the almost continuous pains do not give time for equalization in the circulation of the infant between pains.

6. Early rupture of the amniotic sac.

7. Vigorous methods of resuscitation. If any injury has been done, the very vigorous efforts to resuscitate the infant, after the Schultz method, will tend to increase the size of the hemorrhage, particularly in those cases where there is blood disease of the new born.

You can readily see that in the first six causes enumerated, one or more of which are factors in the process of moulding, this moulding effects a change in the relative position of the skull bones, which is most pronounced in the sagittal suture. The over-riding of the parietal bones causes the dura to both fold and stretch. If this overlapping[2] is excessive (mechanical dystocia or suddenly and rapidly accomplished delivery as with forceps, pituitrin and precipitate labor), or if the dura is abnormally fragile as in prematurity, the dura may break and a hemorrhage result.

The changed configuration of the moulded head is far more important than overlapping of the bones as a causative agent.

We all know that compression of the head in any one direction results in the shortening of the diameter lying in the direction of the pressure, and a simultaneous compensatory lengthening of the diameter perpendicular to the one reduced. Therefore, compression of the head during the second stage of labor along either the anteroposterior or the lateral diameters, always leads to an increase in the length of the vertical diameters of the infant's head. The cranium becomes more convex and the falx is pulled upward. It is generally believed that certain histologic structural details of such tissues as bones or ligaments permit reliable reductions in regard to the functional purpose of these textures. The longitudinal arrangement of the fibers in the falx and their lateral extension on either side into the tentorium then would indicate that it is the chief mechanical task of the falx to prevent an abnormal extension of the long diameters of the cranium; i. e., to counteract during moulding the effect of lateral compression. But sudden or excessive compression in either a lateral or longitudinal direction, by raising the falx, would exert a definite pull at the place where the fibers of the falx diverge to either side to form the upper blade of the tentorium.

This also represents the relatively weakest part of the falx and, as a matter of fact, it is the site of predilection for tentorial tears.

(b) Asphyxia caused by interference in the fetal or maternal circulation due to pressure

on the cord as in cases of breech presentation or cord about the neck; premature separation of the placenta; decreased placental blood supply which may result from continued and vigorous contractions of the uterus, after giving pituitrin.

(c) Blood diseases of the new born have been proven to be a contributing agent more than an exciting cause by Sharpe, Ehrenfest and others, but it is readily seen that when a hemorrhage once starts increased length of clotting time will certainly aid to increase the size of the hemorrhage.

Symptoms

The signs of intracranial hemorrhage in the new born may be so slight that the infant appears normal, or so evident that it is impossible to make a mistake in the diagnosis. It is the milder cases that can be benefited and every effort should be made to diagnose these early.

In these cases we find an infant which has not the rosy tint but the skin is more or less cyanotic and pale around the lips, the cry is faint and after a considerable time, also weak, the respirations are accompanied usually with a sigh or grunt, the infant nurses poorly, or not at all, and is more or less stupid depending upon the size and location of the hemorrhage. There may be slight twitching of the eyelids, face or extremities and in severe cases there may be convulsions. At times the fontanelles are bulging, but more frequently they are normal.

Brady has classified the hemorrhage into supra—and infra-tentorial. In supra-tentorial hemorrhage, according to him, the infant is restless, sleeps little, refuses to nurse and cries excessively. Infra-tentorial cases show unusual somnolence, apathy, early cyanosis, muscular rigidity of neck and extremities.

Diagnosis

In making a diagnosis the nature of the labor must be considered, whether instrumental, precipitate, prolonged use of pituitrin, etc., any signs that may be present must be carefully studied. In any suspicious case lumbar puncture should be done and if the fluid withdrawn is bloody or even yellow it is fair to the infant to make a diagnosis of intracranial hemorrhage.

Sharpe did a lumbar puncture on one hundred consecutive new born infants, and found evidence of cerebral hemorrhage in ten per cent, but the infants only showed signs of hemorrhage in six cases, the fluid withdrawn being bloody in four cases and yellow in six. The pressure of the spinal fluid was not an index to the seriousness of the hemorrhage, but the color of the fluid gave the best information, the bloody cases being the more serious.

Treatment

The treatment that offers the best hope is lumbar puncture and this may be repeated as often as the individual case indicates. If blood is present in the spinal fluid lumbar puncture should be repeated daily until clear fluid is drawn. In case the fluid is yellow, lumbar puncture should be repeated until all signs have disappeared in case any were present. Of course the infant should be kept very quiet and handled only when absolutely necessary. Father's blood, thromboplastin, or some other similar agent should be given in cases where the coagulation time is prolonged.

I want to briefly report two cases. The first one, normal delivery, the second one instrumental.

Case 1.—Mrs. S., age 24, normal individual with a true diameter 9.5 cm. Labor started April 6, 1923, at 6 A. M. and progressed normally. At 11 A. M. the cervix was completely dilated and I ruptured the amniotic sac. The pains were moderately strong and recurring every three to four minutes. At 1:50 P. M. a male infant was born normally under chloroform anaesthesia. The baby was blue, respirations slow, cried weakly, and had a very large caput. The color improved somewhat as did the respiration, but every respiration was with a sigh. Heart sounds were normal. This birth took place at home, but before leaving the house I cautioned the family and nurse as to the seriousness of the case. Nothing further was heard from the family until the next morning when the nurse reported that the child had died very suddenly at 1 A. M. The infant after death was very badly discolored from the clavicle up, covering both sides of the neck and face.

In this case, which showed nothing abnormal in the labor, I believe the hemorrhage was influenced by rupturing the sac, the hydrostatic pressure being released in this way earlier than it would otherwise have been. I have never heard of early ruptures of the sac being a contributory cause, but it is reasonable to believe the more rigid birth canal would be a factor, when the pressure was not equalized at all by the unruptured sac.

Case 2.—The second case I wish to report is Mrs. G., age 24. Her personal history is negative. She gave birth to a normal child with normal labor in June, 1921. Her measurements were normal, but the spine was prominent.

June 10, labor started at 4 A. M., continuing normally. The amniotic sac ruptured at 6:45 A. M. Examination was made at 7 A. M. Abdominal vertex presenting fetal heart, 130 per minute, left side near the mid-line. Vaginal vertex L. O. A. Cervix dilated 1½ inches and thick.

At 11:30 A. M. patient was prepared for instrumental delivery. Examination showed cervix dilated and the head above a prominent spine. Forceps were applied at 11:45 A. M. and after much difficulty a male infant was delivered at 12:15 P. M. Weight of infant eight pounds, length fifty-four cm., other measurements normal. Marks from pressure by the instruments showed about each ear.

This baby cried a great deal, nursed poorly, breathed with a definite sigh, showed jaundice, and twitching of the extremities. Lumbar puncture showed blood and 3 c.c. of bloody fluid were withdrawn. Almost immediately after the lumbar puncture the infant became quieter, rested better, twitching ceased and he started taking the breasts. Lumbar puncture was done only once on this case as the signs all showed continued improvement. He has not shown any more signs of pressure. If I were treating this case at present lumbar puncture would be repeated frequently, certainly until the fluid was clear.

In conclusion, the following rules may be considered prophylactic. Never force an unmoulded head quickly through the pelvis, either with large doses of pituitrin or with hurried forceps extraction. Remember how tender the immature child's tissues may be and that rapid compression of the head might prove disastrous.

Remember an episiotomy is an excellent protective measure against intracephalic injury when dealing with a rigid perineum.

Limit the use of forceps to urgent indications. For the sake of the infant and mother practice gentleness in every obstetrical case. Two bronze mottoes posted in every delivery room at the Chicago Lying-In Hospital express clearly what should be followed by every doctor attending a case of confinement, for the welfare of both mother and child.

Primum Nil Nocete (first of all do no damage). *Non Vi Sed Arte* (not with strength but with art).

1. Sharpe & Maclaire, A. J. of O. & G. Aug., 1924.
2. Ehrenfest, A. J. Dis. Child. Dec., 1923.

THE OCULAR FACTOR IN HEADACHES.*

By FRANK M. DILLARD, M. D., Alexandria, Va.

The symptom for which I am most frequently consulted is headache, and I may safely say the above is true in the practice of all oculists. The medical man will find 25 per cent of all his patients complaining of some form of this disturbance.

The eye factor in all forms of headaches is greater than is generally supposed. Probably not less than 75 per cent are due to eye strain. The other 25 per cent can be traced to abnormalities about the nose and diseases of the nasal accessory sinuses, and to the general diseases that are accompanied with headaches. Headaches that are due to eye strain are invariably bilateral. The one-sided headaches are not commonly due to eye strain.

In the study of headaches, the site, the character of the pain or distress, the time of day of occurrence, and greatest severity, with the character and amount of employment of the eyes, and the state of the general health, are important points for the oculist and medical man. The site of the headache, as a rule, will tell us in a general way the type of refractive error. A frontal or supra-orbital headache will suggest or indicate a hypertrophic error or farsight; occipital pain will suggest some imbalance of the ocular muscles. The bilateral temporal headaches at once suggest astigmatism, and, let me say here, as a rule, the smallest refractive astigmatic error will cause the worst headaches. When headaches occur in more than one place in the head, we at once think of a combination of refractive errors, such as combined astigmatism; that is, farsighted in one meridian and nearsighted in the other. The kind of headache due to eye strain is usually dull or they will tell you they have a dull boring sensation when they use the eyes to excess. Very seldom will you find the knifelike pains in the head due to eye strain or refractive error. You will also find the headaches due to eye strain and refractive errors to get worse or to come on, as they say, toward the end of the day. This is especially

*Read before the Alexandria City Medical Society, Alexandria, Va., October 7, 1924.

true in people who use their eyes continually for close work; and right here is a good differential symptom. The headaches that most simulate eye strain and refractive error headaches are the ones due to diseased conditions of the nose and its accessory sinuses. These headaches are invariably worse on arising in the mornings and lessen as the day advances. This can probably be explained by the filling of the sinuses when in lying posture during the night, and naturally more absorption of infection at this time. As the day goes on you have a gradual elimination of these accumulations, with less absorption. In convalescent patients from long standing diseases, and following major surgical operations, patients complain of headaches and other remote distresses due to eye strain and errors of refraction. When these patients once again reach good general health, they are able most of the time to overcome the existing error of refraction and muscular imbalance and their reflex pains disappear. The cases that do not clear up in a reasonable time after convalescence may have a permanent error of refraction or muscular imbalance, and they should always be examined under a mydriatic and if the error is found and corrected with lenses the troublesome reflex pain usually always clears up. Because a patient is wearing glasses when he comes to you or me for relief, it is no evidence that the glasses are right at the time he seeks relief. By questioning one will frequently find that the glasses were given by some incompetent optician and without the use of a mydriatic; and again, he is wearing a correction which was right at the time given, but has now been changed by time or by a rundown state of health.

The patient's description of his headache should be noted and too much care cannot be taken in getting details of the complaints given by a patient suffering from headaches. With a suspicion of an existing error of refraction, an examination under a mydriatic is always indicated up to fifty years of age. It is not safe to use a mydriatic, as a rule, when the patient is past fifty. Quite frequently we see a patient complaining of headache, and we have reasons to believe it due to eye strain. On examination we find no refractive error or external signs of eye irritation, but on a careful inspection of the conjunctiva, by turning the lower and upper lid, we find a chronic granular infection. With the headaches in this condition, the patient complains of a drowsiness and tired feeling about the head and eyes, that is worse in the afternoon. As a matter of fact many who have come for relief of headache had thought they required glasses, but examination found the cause to be a conjunctival disease. The patients as a rule get relief from their headaches and other eye symptoms as soon as the conjunctiva has responded to a course of treatment.

When headaches due to glaucoma, iritis, keratitis, and other diseases that attack the deeper eye structures, are found, they are easily recognized as caused by the affection.

Hemicrania (or one-sided headache) should make us think first of an increased intra-ocular pressure (glaucoma) and all cases of increased pressure and all migraine cases should have a complete ophthalmoscopic examination of the fundus of the eye because it might reveal a cupping of the optic discs, which is a result of increased tension and there may be no external evidence of glaucoma. A careful ophthalmoscopic examination of the fundus of the eye should be insisted upon in every patient who complains of headaches that are persistent and uncontrollable. By such examination many diseases, such as brain tumors, anemias, arteriosclerosis, toxemias, and others, are diagnosed for the first time.

Not one of the routine tests of the many that go to make up a complete eye examination should be omitted when a headache patient consults for relief, and if your best efforts are not sufficient to allay the distress entirely, advice should always be given the sufferers to seek possible relief elsewhere.

111 *North Alfred Street.*

TREATMENT OF INGUINAL HERNIA IN INFANTS AND YOUNG CHILDREN.

By LEIGH F. WATSON, M. D., Chicago, Illinois.

I believe the best rule is not to operate on a simple easily controlled inguinal hernia before the fourth year of age unless truss treatment has been given two years' trial. Most general surgeons advocate early operation without giving mechanical treatment a trial.

The results following truss treatment in infants and young children are very favorable (fifty to seventy-five per cent of cures). There is a definite mortality following the radical operation in infants and young children, which,

while lower than in adults, is still higher than in children between four and twelve years of age.

A bandage or worsted truss can be applied to an infant under a month old. After this age it can wear a light spring truss covered with muslin or flannel, with a soft cloth placed between the pad and the skin to prevent chafing. The skin must be kept clean, dry and well powdered at all times. If the little patient does not cry at night, the truss may be left off or replaced by a light bandage.

The best truss for infants and children is of the frame type and should be made of phosphor bronze so it will hold the hernia by resistance, and not by pressure on the hernial ring as with the spring truss.

A frame truss can be applied to an infant one day old if necessary. Just as much care should be exercised in fitting a truss to an infant or child as is given to an adult. The truss should be changed frequently as the child grows. The rules for fitting of trusses to adults, apply also to infants and children.

Operative treatment is indicated regardless of the age of the patient under any one of the following conditions: When the hernia is strangulated or irreducible, immediate operation is imperative; when the hernia cannot be retained by a properly fitted truss, operation should be resorted to; when the patient cannot wear a truss owing to deformity or disease; when the hernia is complicated by a hydrocele in the inguinal canal; when there is adherent omentum or intestine in the sac; when there are recurrent attacks of strangulation; when the hernia has not reduced in size after two years of truss treatment; when the parents refuse the truss and insist on operation; and when the testicle is in the inguinal canal and only partially descended.

Delayed descent of the testicle may make the fitting of a truss impossible, or the pressure of the pad on the testicle may cause pain and discomfort, as well as atrophy of it and possibly malignant degeneration.

When the little patient is under the anesthetic and there is some uncertainty as to which side the hernia is on it can nearly always be determined by gently rolling the spermatic cord between the thumb and finger. The cord is the thickest on the side of the hernia.

Great care must be taken in operating on infants and young children for hernia. The structures are very delicate, and are easily torn by careless or rough dissection and retraction. Only a very short skin incision is required, not over one and a half inches (4 cm.) long, and it should not extend below the external ring on account of the danger of urine infection. In freeing the sac from the tiny vas deferens, the greatest deftness is required.

The modified Bassini operation is done as described for the adult. On account of the short canal, one or two deep sutures are sufficient in infants, and two or three in older children. The cord can be transplanted without injury if the dissection is carried out very gently.

Some operators are content with a simple ligation of the sac that leaves the cord undisturbed. However, in infants and children, as in adults, there is a higher percentage of recurrences when the cord is not transplanted. It is usually not necessary to overlap the aponeurosis of the external oblique, unless it has been stretched by a large hernia. The subcutaneous tissues and skin are closed without drainage.

In operating on infants and young children, small instruments, such as used in eye work, are a decided advantage to minimize trauma to the delicate tissues.

A waterproof dressing for the wound is essential for these little patients to prevent contamination by urine and feces. A small gauze dressing is placed over the wound and covered by a piece of gutta percha. Several layers of gauze squares saturated with collodion are successively applied over the gutta percha and extended beyond its edges. The regular gauze or cotton pad dressing is placed over the collodion gauze dressing, and changed whenever it becomes soiled. If the adhesive straps and lower half of the dressings are painted with collodion or compound tincture of benzoin, there will be slight danger of the wound becoming infected from urine.

When there is an unusual danger of urine contaminating the wound it is advisable to cement a few layers of gauze to the wound by a solution of india rubber dissolved in chloroform. This is more adhesive and protective than collodion.

Infants are only slightly inconvenienced by operation. They are able to nurse soon afterward, and can be given to the care of their mothers almost immediately. Older children sometimes require a dose or two of paregoric for the pain and restlessness.

The head of the bed is kept elevated, so that when the child urinates there is less danger of contaminating the wound. In male children, I stretch a piece of gutta percha or rubber sheeting or adhesive plaster over the penis and fasten it on either side to the thighs. A bed arranged so that the covers are held up by a frame and do not touch the child, will prevent the danger of wet covers coming in contact with the wound dressing, soiling and loosening it. Children who can walk alone should be kept in bed one to two weeks.

Strangulated hernia.—Strangulation may occur any time after birth. In infants the most striking symptoms of strangulation are: Profound collapse, with rapid, thready pulse, and cold damp extremities; vomiting, first of stomach contents, followed by intestinal contents; and violent, continuous and uncontrollable screaming.

If the strangulated hernia is of only a few hours' duration, an attempt to reduce it by cautious taxis is sometimes justifiable. The child can be placed in a warm mustard bath or hot compresses may be applied to the tumor, which is gently kneaded. If this is unsuccessful, sometimes reduction can be effected by slinging the child up by its feet, with its head downward, and while in this position making taxis on the strangulated mass. Often it is helpful to have the foot of the bed elevated while applying gentle pressure on the tumor; and sometimes flexing the thigh and rotating it outward will aid taxis. Taxis in infants and young children must be applied cautiously. Too violent efforts may cause crushing of the testicle or intestine, followed by gangrene.

In strangulation of more than a few hours' duration, immediate operation is imperative without preliminary attempts at taxis; in strangulation of very short duration, if taxis is unsuccessful after a few minutes' trial, operation must be done at once without further attempt at taxis.

Shock and chilling of the body must be guarded against by placing an electric pad under the little patient on the operating table, or by surrounding him with hot water bottles. The quickest and simplest operation must be done; usually it is best not to take the extra time required to transplant the cord.

30 *North Michigan Avenue.*

Clinical Reports

REPORT OF TWO CASES OF RESECTION OF THE STOMACH UNDER LOCAL ANESTHESIA.*

By J. SHELTON HORSLEY, M. D., Richmond, Va.

The first of these two patients was a rather bad surgical risk, and general anesthesia seemed contraindicated. For the second, general anesthesia could have been administered, but the patient had a marked amount of albumin in his urine, though the phenolsulphonephthalein test was satisfactory.

These two patients, operated upon within two months of each other, made such a satisfactory convalescence from an extensive operation performed under local anesthesia that their report may be of some interest.

Case 1.—Mr. T. M. H., white, age 68, entered St. Elizabeth's Hospital July 9, 1924. He had had a double inguinal hernia for three years. About ten or twelve days before admission he began vomiting and his bowels moved with difficulty. The vomitus contained food eaten one or two days previously. The patient vomited every night one or more times. Vomiting relieved the nausea and sense of fullness in the stomach. He had a good appetite and ate rather heartily in spite of the vomiting. He had lost fifteen pounds in two weeks. Physical examination showed a rather poorly nourished patient with dry and flabby skin, a definite recent loss of weight, bilateral internal squint, arteriosclerosis, cardiac hypertrophy, and aortic insufficiency. The pulse was 60 and regular. The blood pressure was 110/70. An irregular, rather freely movable mass was felt in the middle of the left epigastric region. He had bilateral inguinal hernia. Roentgen ray examination showed a gross defect in the pyloric end of the stomach, involving both curvatures and extending for four or five inches along the greater curvature. A 70 per cent barium retention was present at the end of four hours, and 35 per cent after 24 hours. The diagnosis was inoperable carcinoma of the stomach with pyloric obstruction. A palliative gastroenterostomy seemed indicated.

Laboratory reports showed the hemoglobin 70, red blood cells 4,600,000 and white blood cells 7,400. Two-hour phenolsulphonephthalein kidney test showed 75 per cent. The urine con-

*Reported at the fifty-fifth annual meeting of the Medical Society of Virginia, at Staunton, October 15, 1924.

tained 1-plus albumin, and an occasional hyalin cast and pus cell. The blood Wassermann was negative.

On account of the patient's age, general debility and cardiac condition, he was operated upon under local anesthesia on July 14, 1924. The stomach was found freely movable, with a few hard lymph nodes along both curvatures. No enlarged lymph nodes could be palpated aside from those near the curvatures. There was no enlargement or suspicion of any metastasis around the liver. It was thought that the case was operable, and after infiltrating the posterior peritoneum and the peritoneum about the pancreas and the gastrocolic omentum, almost half of the stomach was excised with comparatively little pain. The tissues were very movable and the stump of the stomach was anastomosed to the end of the duodenum by a modified Billroth I operation, in which the duodenum was split for about 1½ inches so as to flare it open and united to the upper portion of the stump of the stomach.

The specimen consisted of part of the cardiac, all of the pyloric end of the stomach, and part of the duodenum. It measured 10 cm. on the lesser curvature and 16 cm. on the greater curvature. Microscopic examination showed definite carcinoma of the stomach with metastases in the adjacent lymph nodes.

The patient left the table with a pulse of 80. The pulse during the convalescence never rose above 88. Following operation, gastric lavage was done twice daily for three days, once daily for two more days, and then discontinued. His recovery was rapid and uneventful. The patient left the hospital on August 8, 1924, with digestion apparently in good condition for ordinary diet. His general appearance was much better than when he was admitted.

Case 2.—Mr. C. H. P., white, age 59, entered St. Elizabeth's Hospital September 10, 1924, complaining of dull throbbing pain in the pit of the stomach. He first noticed this pain eight or nine years ago, occurring in cycles lasting for two or three months. The duration of pain then was about half an hour. It gradually became more frequent and more prolonged until on admission the pain was present every day and lasted about twelve hours. The pain was relieved for several hours by hot water and soda. It did not seem to have any definite relation to meals, and would occur immediately after eating or sometimes at midnight. He had much gas and a feeling of fullness in the stomach. He belched frequently. These latter symptoms usually accompanied the pain. The patient had lost fifteen pounds during the last few months.

Physical examination showed definite loss of weight, pyorrhoea alveolaris, and bad teeth. The heart showed extra systoles, pulse rate 72, blood pressure 158/100. There was definite arteriosclerosis. The abdominal wall was thin and relaxed, and the abdomen was scaphoid. There was marked visceroptosis. An indefinite mass in the epigastric region could be felt when the patient was standing. It was somewhat to the left of the midline and extended to about the umbilicus. There was a left hydrocele. Roentgen ray examination showed a constant filling defect at the pylorus, involving both curvatures, especially the lesser. The emptying time was about normal. Roentgen ray examination seemed to indicate cancer of the stomach.

Laboratory reports showed hemoglobin 65, red blood cells 4,620,000, and white blood cells 7,640. Differential count and blood smear were about normal. Urine showed 3-plus albumin, a few leukocytes to the high power field, and an occasional hyalin cast. Phenolsulphonephthalein was 67 per cent in two hours. Gastric analysis gave a low normal free and combined acidity, a few pus cells and a large number of red blood cells. The blood Wassermann was negative.

In view of the patient's age and rather poor condition, and the probable diagnosis of malignancy, an exploratory operation was done under local anesthesia, as in case 1. A rather firm, partly adherent mass was felt in the posterior wall of the stomach near the lesser curvature. The stomach was resected under local anesthesia as in case 1, using practically the identical technic.

The specimen consisted of part of the cardiac portion and all of the pyloric end of the stomach, and part of the duodenum. It measured 11 cm. along the lesser curvature, and 19 cm. along the greater curvature. On the posterior wall was a perforating ulcer of the stomach which had gone through to the peritoneal surface and appeared to be about to rupture into the lesser peritoneal cavity. In the pyloric portion of the stomach near the sphincter of the pylorus was a small ulcer in the anterior wall of the stomach. The large ulcer measured 2½ cm.

in diameter, and the small ulcer 1½ cm. in diameter.

Sections show chronic inflammation, but no malignancy.

The patient left the table with pulse 60, and it never went higher than 100 during the convalescence. The stomach was washed out as a routine measure, and he recovered uneventfully. He left the hospital on October 8, 1924, feeling well and with a good appetite, apparently digesting the food he was given. His abdominal wound healed by first intention.

The striking thing about these two patients is that the first one had a very extensive carcinoma and was a bad surgical risk. The second had two ulcers, the larger one in the posterior wall was about to perforate. Both patients had lost considerable weight and both were markedly arteriosclerotic. The first patient had an aortic lesion in addition. and the second had extra systoles in the heart. The operations were a little tedious under local anesthesia, but in both instances the patients left the table with pulse about as good as when the operation was begun, and they made as smooth a recovery as the average patient would after a simple appendectomy.

This experience impresses the value of local anesthesia in gastric surgery when the patient's general physical condition is much below normal. Any type of general anesthesia in either of these patients would have increased the operative risk.

617 *West Grace Street.*

REPORT OF A SUICIDE WITH STRANGE EFFECT ON SKULL.*

By W. H. RIBBLE, M. D., Wytheville, Va.

Walter B ———, age about fifty-three, was an only child. His father and mother left him a house and lot, with a barn on the lot. He fixed up the barn, lived in it and rented the house, taking his meals with the tenant.

Living alone and being uncongenial with his relatives, he frequently sought solace in drink.

On August 28, 1923, he went with two drinking companions about a mile from home, to "salt his calves." He, being more intoxicated than his companions, was left by them asleep under a tree, where he stayed all night and contracted bronchitis. A neighbor waited on him during his sickness, and Walter showed his appreciation of the kindness by willing him all his belongings.

The evening of June 29, 1924, he stayed with a neighbor, across the street from his abode, until eleven o'clock. Leaving there he went to the cabin of some colored people and asked to be allowed to sit by the kitchen stove. He remained there till daybreak and left. When breakfast was ready at his tenant's he did not show up. An investigation was made, and he was found dead on the floor at the foot of his bed, with a bullet hole through his head and his pistol at his right hand.

An examination showed no powder burn where the ball entered. On palpation, the sutures of the skull were found separated, giving the suggestion of a crushed skull. But, there could be found no bruise or abrasion on the head.

The neighbors, being questioned, had heard no report of a gun, or any disturbance; and nothing in the house or on his person showed evidence of being disturbed.

Being puzzled by the unusual conditions, I viewed the situation more critically and found blood and brain tissue spattered against the foot of the bed about two feet from the floor, and the bullet was found embedded in the ceiling. Closer investigation showed that there was powder burn just inside the wound; and the picture presented itself of the man resting his temple on the muzzle of the gun, the handle of which was against the floor, causing the explosion to take place practically inside of the skull, spreading its walls, forcing blood and brain out with the ball, and muffling the explosion so that it was not heard across the street.

There is a law suit now in progress to test the mental responsibility of the man when he willed his property to his old friend.

*Read before the meeting of the Southwestern Virginia Medical Society, in Marion, September 11 and 12, 1924.

COLLES' FRACTURE WITH AN UNUSUAL ETIOLOGY.

By J. B. H. WARING, M. D., Blanchester, Ohio.

On July 21, 1924, I was called to see Mrs. W. W., a well preserved lady of 80 years, who had always done considerable domestic work and had been quite active all her life.

She had been working in her garden that morning, and attempted to pull up a weed with an extensive root ramification: her pull

on the weed resulted in its sudden release from the ground, with the result that the dorsum of the right hand was thrown back sharply and struck an old corn stalk which had remained in place from the previous season's garden. Aside from an apparently slight laceration of the skin on dorsum of hand, about midway over the 3rd and 4th metacarpal bones, with some bruising of the tissues from the force of the blow, no apparent serious damage had been done, and Mrs. W. continued with her garden work, using the left hand for weed pulling.

The hand and wrist began to pain her and stiffen some, with moderate swelling, so that in the afternoon she invited attention of her daughter to the hand and wrist, with result that I was called and, upon examination, found a typical Colles' fracture, with moderate displacement of the fragments. Reduction was accomplished quite easily, and the arm splinted in good position.

Colles' fracture, of course, is a rather common condition; but the point of interest is the rather unusual etiology. The accident, however, should cause us to point out to our elderly patients the necessity and the advisability of refraining from heavy muscular exertion with advancing age.

American Heart Association Organized

At the last meeting of the American Medical Association in Chicago in June, a group of men interested in the prevention and relief of heart disease, organized under the above name. Dr. Lewis A. Conner, of New York, was elected president. The officers named will hold until the first annual meeting which will be held in February, 1925. Offices are at 370 Seventh Avenue, New York City, with M. L. Woughter as acting executive secretary.

Local Heart associations are already in active operation in New York City, Boston, Philadelphia and Chicago.

Framingham Monograph No. 10,

The last of the series of Framingham Monographs prepared by Dr. Donald B. Armstrong, has just been issued and comprises under one cover a summary of the chief activities and findings of the Framingham Demonstration during the seven-year period, 1917 to 1923, inclusive. Copies of this final report may be purchased for 25 cents per copy. Copies of the other monographs are also available for purchase upon request made to the National Tuberculosis Association, 370 Seventh Avenue, New York.

New Child-Labor Laws Proposed in Louisiana.

A 9-hour day and 54-hour week for children under 18 and for women employed in factories, stores, laundries, restaurants, etc., is proposed by a bill favorably reported in the Louisiana legislature. Under this bill, if passed, children between 14 and 16 would be required to complete the 5th grade and to have a physical examination before they received work permits. At present children may be employed 10 hours a day and 60 hours a week in Louisiana.

Study of Cleveland Newsboys.

The Ohio Consumers' League recently studied more than 800 children found selling on the streets of Cleveland, 715 of whom were newsboys. Over one-third of these boys were under 12 years of age. The majority of them were earning less than $3 a week and only 14 mothers out of 50 reported that the earnings of the children were needed at home. The children who did street trading were found to be far behind other children in school and more than half of them had physical defects which, it was believed, might be rendered serious by continued exposure and fatigue.

Book Announcements

Students' Guide to Operative Surgery. By ALFRED T. BAZIN, D. S. O., M. D., Assistant Professor of Surgery and Clinical Surgery, McGill University, assisted by F. A. C. SCRIMGER, V. C., B. A., M. D., F. J. TEES, M. C., B. A., M. D., L. H. McKIM, M. D., I. McL. THOMPSON, B. Sc., M. B., Ch. B. (Edin.), of the Departments of Surgery and Anatomy, McGill University. Montreal. Renouf Publishing Company. 25 McGill College Avenue. 1923. 126 pages. 12mo. Cloth. Price, $2.50 post prepaid.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on all branches of medicine and surgery, by Leading Members of the Medical Profession Throughout the World. Edited by HENRY W. Cattell, A. M., M. D., Philadelphia, with a number of collaborators. Volume III. Thirty-fourth series, 1924. Philadelphia and London. J. B. Lippincott Company. 1924. 8vo. 304 pages. Cloth.

Fundamentals of Human Physiology. By R. G. PEARCE, B. A., M. D., Formerly Director Medical Research Laboratory, Lakeside Hospital, Cleveland, O., and J. J. R. Macleod, M. D., D. Sc., F. R. S., Professor of Physiology in the University of Toronto, Toronto, Canada. Assisted in the Third Edition by DR. NORMAN B. TAYLOR. Third Edition. St. Louis. The C. V. Mosby Company. 1924. 349 pages. Cloth, 8vo. Price, $3.50.

Proceedings of Societies

MEDICAL SOCIETY OF VIRGINIA

Tuesday, October 14.

The fifty-fifth annual meeting of the Medical Society of Virginia was called to order in Beverley Theater, Staunton, Va., Tuesday evening, October 14, 1924, at 8 P. M., by Dr. Alex. F. Robertson, Jr., chairman of the Local Committee on Entertainment. Invocation was offered by Rev. J. Lewis Gibbs, of that city, following which an address of welcome, on behalf of the city, was made by Hon. Herbert McKeldon Smith, Mayor of Staunton.

In the absence of the President, Dr. W. W. Chaffin, of Pulaski, the first Vice-President, Dr. Hunter H. McGuire, Winchester, was introduced and took the chair. In lieu of an address, Dr. McGuire made a few appropriate remarks and, with the house standing, read the following telegram, which the secretary was authorized to transmit to Dr. Chaffin:

At its opening session, The Medical Society of Virginia sends you affectionate greetings. The splendid work you have done for the organization during the past year and the high esteem in which you are held by your fellow-members, only tend to accentuate the deep feeling of regret experienced at your absence. In conveying to you expressions of our deepest sympathy, we cherish the hope that you will soon be restored to health and be permitted to continue the unselfish work which has always distinguished your professional career.

HUNTER H. MCGUIRE, *First Vice-President.*

In the absence of the chairman or any member of the Necrological Committee, Dr. W. M. Phelps, Staunton, then observed Memorial Hour by reading names of the following members whose deaths had been reported since our last meeting:

Dr. W. L. Hudson, Luray.
Dr. B. S. Dobyns, Fries.
Dr. W. H. Thomas, Steeles Tavern.
Dr. Robt. Graham Wiatt, University.
Dr. Henry Samuel Myers, Forks of Buffalo.
Dr. Nicholas Perkins Oglesby, Dublin.
Dr. Charles Wesley Astrop, Surry.
Dr. John Clancy Parish, Smithfield.
Dr. James Harvey Bogle, Sebring, Fla.
Dr. Edgar Waples Robertson, Onancock.
Dr. Albert Chapman Lancaster, Martinsville.
Dr. Frank Waters Hains, Petersburg.
Dr. Claybrook Fauntleroy, Dragonville.
Dr. Paulus Fitz James Miller, Va. Beach.
Dr. Henry Dorrance Beyea, Ware Neck.
Dr. William Fewell Merchant, Manassas.
Dr. Edward Julian Moseley, Richmond.
Dr. William S. Gordon, Richmond.
Dr. Hugh Benjamin Mahood, Emporia.
Dr. Edward Alex. Hatton, Portsmouth.
Dr. John Peebles Proctor, Athens, Ga.
Dr. Henry Harrison Jones, Doe Hill.
Dr. Samuel S. Simpson, Clarendon.
Dr. Alvah Stoakley Hudson, West Point.
Dr. James H. Jones, Blackstone.
Dr. James White Cummings, Abingdon.
Dr. Samuel Wilson Hobson, Newport News.
Dr. Charles Holdsworth Barlow, Portsmouth.
Dr. George Russell Cottingham, Remington.
Dr. Joseph Thomas Davis, North Emporia.

Report of the Executive Council was next called and was presented by Dr. Lawrence T. Price, Richmond, Clerk of the Council. This was referred to the House of Delegates.

The only other report presented the first night was that of the delegates to the American Medical Association, which was read by Dr. Southgate Leigh, Norfolk, and also referred to the House of Delegates.

Next on the program was a talk by Mr. Howard McManaway, Superintendent of the Virginia School for Deaf and Blind, who explained the object of the school and the various degrees of deafness. Two of the teachers and several of the pupils gave an excellent demonstration of how the children are trained, the results being attested by the work of the children who assisted. This proved a most interesting feature of the meeting and gave the audience a clearer conception of the wonderful work done at the institution.

The scientific program was then taken up and several papers presented.

Wednesday, October 15.

The House of Delegates held its first meeting at 9 A. M., October 15, in a room set aside at Hotel Stonewall Jackson and this was followed by the first meeting of the Executive Council. (Reports of all meetings of the House and Council follow, beginning on page 510).

At 10 A. M., there was a general meeting of the Society at which Dr. R. Bruce James, Danville, second Vice-President, presided. Following clinical case reports, papers were read in the symposium on "Endocrinology." These were freely discussed and, with the discussions, will appear in an early issue of the journal,

as also will papers read at other sessions.

The Woman's Auxiliary to the Medical Society of Virginia met at Hotel Stonewall Jackson at 10:30 A. M., October 15, with Mrs. R. Lloyd Williams, Norfolk, presiding (Report appears on page 516).

Afternoon and night sessions on Wednesday were held in Medical and Surgical sections, Dr. H. H. McGuire, First Vice-President, being assisted in presiding by Dr. R. B. James and Dr. O. T. Amory, Second and Third Vice-Presidents, respectively.

At a meeting of one of the Surgical sections, Dr. S. S. Gale made a motion, duly seconded and carried, that the Surgical section instruct its chairman to appoint a committee of three to bring Dr. Murat Willis' paper on "Why the Increasing Mortality in Appendicitis?" before the Medical Section and the public in a general meeting of this session. The following committee was named by the chairman: Dr. Murat Willis, Chairman; Dr. Stuart McGuire and Dr. H. H. Trout. (As this notice was received so late, it will be referred to the first meeting of the Executive Council for action).

Dr. Olin West, Secretary of the American Medical Association, paid our Society an informal visit on Wednesday, en route to Atlantic City, and spoke before the sections. A called meeting of the House of Delegates was also held at 8 P. M. that evening, that its members might have the pleasure of hearing from Dr. West.

Following this meeting of the House of Delegates, the Executive Council held its second regular meeting.

Thursday, October 16.

The House of Delegates held its last meeting on Thursday, October 16, at 9 A. M., while the scientific papers were being read before Medical and Surgical sections. The report of this meeting of the House was read before a general meeting of the Society, called by special order, at noon that day, and was adopted as amended.

The afternoon was given over to a trip to the Grottoes of the Shenandoah and automobile rides to places of interest in that section, both the ladies and the doctors participating in this pleasure. That night a general meeting was held at Staunton Military Academy, following an elaborate supper tendered the members of the Society and the ladies accompanying them. The speakers on this occasion were our invited guests: Dr. Albert J. Ochsner, Chicago; Dr. John Osborn Polak, Brooklyn, and Dr. Daniel A. Orth, Chicago. These papers showed much study and were well received.

Friday, October 17.

The closing day of the meeting, it was decided to hold one general session instead of having Medical and Surgical sections as had been arranged on the program.

During the meetings, telegrams were received and read from the President, Dr. W. W. Chaffin, the Southern Medical Association, and several members.

Upon completion of the scientific program, under "Unfinished business," a report was read from the Membership Committee, recommending ten doctors for active membership and one for associate membership. These doctors are from localities in which there are no active component societies. Moved, seconded and adopted that this report be accepted.

Upon motion duly seconded, Dr. W. W. Chaffin, the retiring President, was elected to honorary membership.

A resolution was offered expressing thanks to the city of Staunton, the Augusta County Medical Association, the management of Hotel Stonewall Jackson (headquarters of the meeting), the Staunton Military Academy, the Mary Baldwin College, and Stuart Hall for the splendid entertainment extended the members of the Medical Society of Virginia and their ladies. Seconded and carried.

In the absence of other retiring officers, Dr. Hunter H. McGuire introduced himself as president-elect in the following speech:

> In thanking you for this honor, the greatest gift which the medical profession of Virginia can bestow, I am deeply sensible of the responsibilities involved in the conduct of this high office and can only assure you that it will be my constant endeavor to advance the work of this great organization with the same degree of earnestness and enthusiasm which has been shown by my distinguished predecessors in office.
>
> I like to feel that your action has been prompted by a desire, on the part of this Society, to give recognition to the great advances which have been made in that branch of medicine I have the honor to represent. I think you will agree with me that in recent years ophthalmology has been keeping pace with the wonderful strides of internal medicine, surgery, and the other specialties represented in this organization. Though fully alive to the importance of special development, it no longer casts its lines in narrow channels but is increasing its range of action in co-operation and in association with the great system of medicine of which it forms an

important part. For the second time in your history, you have honored a representative of ophthalmic science with the presidency of this Society. Fully aware of the grave responsibilities involved, and pledging the best service in my capacity, I accept the office and trust that your confidence has not been misplaced.

There being no further business, the fifty-fifth annual meeting of the Medical Society of Virginia adjourned.

REPORT OF DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION.

The Seventy-Fifth Annual Session of the American Medical Association, held in Chicago, June 9th to 13th, eclipsed in attendance all former meetings, there being more than ten thousand present, including families of doctors.

As far as possible in such a large city, the activities were grouped in a comparatively small area, the headquarters hotel, the meeting place of the various scientific groups and the place for business meetings, being in easy distance of each other and on or near the Lake Front.

Registration, exhibits of all kinds, and scientific sessions, were all of them held on one floor of the huge municipal pier.

All business affairs were conducted in the association's own magnificent seven-story, fireproof building, which occupies a site one hundred by one hundred and sixty feet, on a prominent corner. In this building has been developed one of the most perfect modern and effective establishments in the world.

The splendid success of the A. M. A., both scientifically and financially, has been due largely to the untiring efforts of Dr. Geo. H. Simmons, Editor and General Manager, who has this year retired and been given an honorary position with salary. Many tributes were paid by the delegates and fellows to the wonderful accomplishments of Dr. Simmons.

Dr. Olin West becomes acting General Manager, Dr. Morris Fishbein acting Editor and Mr. Will C. Braun acting Business Manager.

In reference to the Scientific work of the session, it would be impossible for your delegates to do more than refer you to the pages of the Journal. The meetings were productive of great good for the profession and the public, which will be of far-reaching effect.

We are much pleased to report that the Chairman of the Council on Scientific Assembly is one of our honored members, Dr. J. Shelton Horsley. His splendid efforts in the arduous work of the Assembly, not only this year, but for several years past, have been deeply appreciated and applauded by the Association, and have reflected on himself and his State the highest possible credit.

The work of the House of Delegates has each year steadily increased, until now the major part of the time of the Delegates is consumed either in the business meetings or in the various committees.

Many matters of great importance were considered, and much good accomplished.

Your delegates would again urge a closer affiliation between the Medical Society of Virginia and the National Organization, and a larger attendance of our members on the annual meetings.

We are proud to record that our State Association is one of only six in the Union that employs a full time secretary.

We are, however, considerably below the average in the number of our local societies. Your delegates believe that Virginia will never reap the full benefits of Medical Organization until practically all of our counties are organized. It is interesting to note that our sister State, Alabama, has 100 per cent organized.

In most states, each Councilor is responsible, with the Secretary, for the organizing and functioning of each component society in his district.

At the request of the University of Virginia, transmitted through your delegates, the conflict in time of meeting between the A. M. A. and the commencements of the various Medical Schools, will hereafter be avoided when possible.

The Veterans Bureau has agreed to discontinue the so-called education of Veterans in Chiropractor Schools.

A Bureau of Health and Public Instruction has been organized with Dr. Dodson as its Executive head, and is doing effective work.

The Judicial Council, in commenting on its investigation of reported instances of "fee-splitting," condemned this pernicious practice and urges component societies and State Associations to purge their membership of any who willfully refuse to desist from such practice, the continuance of which can only bring dishonor and reproach on the Medical Profesion.

The Council also gave its definition of the

term "Sectarian," as "one who in his practice follows a dogma, tenet or principle based on the authority of its promulgator to the exclusion of demonstration and experience."

President-Elect Pusey, in his address, vigorously discussed the present trend in Nurse Education and Service, and in Medical Education. Both of these matters were referred to the Council on Medical Education and Hospitals, where the subjects have previously been given a great deal of careful investigation.

During the meeting much thought and discussion were bestowed on these weighty matters.

It is recognized that the cost of the present high-class training of nurses, and the consequent cost of nursing for the sick, is so great that a very large part of our population is without such important care. On the other hand, there is no desire to lower the standard of nurse education. Some plan will probably be worked out so as to furnish nurse attendants at a moderate cost and continue the regular nurse education on the present high scale.

We meet with a still greater problem in Medical Education, which admittedly is requiring too many years, including grammar school, college, medical course and hospital.

One of your delegates introducted a resolution suggesting a Commission, composed of representatives of each of these departments of education, to study the question and find some way to cut down the required number of years.

A medical man should be able to begin the practice of his profession earlier than his twenty-eighth year, which is now the average.

Dr. Pusey suggests that the medical course be cut to three years with an additional required year in an approved hospital.

He also discussed, in a most attractive manner, the idea that medical instruction is including many subjects which properly belong to the specialist, and suggested the advisability of an advanced degree for specialists.

The House of Delegates took a most decided stand on the question of prescribing liquor in sickness and passed unanimously two resolutions, the first calling upon the Government to carry out the spirit of the 18th Ammendment by permitting reputable doctors to prescribe whatever amount of alcoholic liquor may be needed in sickness; and the second, calling upon the state and local societies to severely condemn illegal prescribing of liquor. The Government was also asked to provide safe liquor for prescription use.

The most important matter brought before the House was a special report of the Judicial Council, referring to so-called Life Extension Institutes. The subject was considered by the Committee of the Whole, and took up an entire afternoon. It developed that certain commercial organizations have built up a large and very lucrative business and made use of many members of the profession who have given their aid unwittingly to the plan. These companies pay the physician a definite price and then sell the result of the examination to the individual at a much higher price. In other words, the companies acting as jobbers, buy the physician's service at one price and sell to the public at another.

The House severely condemns the arrangement, advised the profession against aiding these commercial concerns and urged that the various state and local societies take steps at once to inform the public as to the great importance of periodical health examinations, made by *their regular physicians.*

In reference to the splendid publication, "Hygeia," the House reported as follows: "For years, the members of the American Medical Association have sought means of conveying to the lay public news concerning the best efforts of our organization in behalf of preventive medicine. The members of our Association have long wished for a publication that might be circulated among laymen, contrasting in its columns, in a dignified manner, the efforts of organized medicine to improve public health, as compared with the practices adopted by cults and quacks. Such a publication was inaugurated by the Association in 1922, and despite the splendid results attained by its editorial board and the great energy expended in attempting to extend its circulation, we note with regret that approximately only 14,000 physicians have today availed themselves, by subscription, of the opportunity to place this magazine in the hands of lay readers."

Your delegates were informed that "Hygeia" is costing about $90,000 to publish and that there is a net loss annually of $39,000. There is no thought on the part of the management to discontinue this most useful publication, but we are urged to ask the active co-operation of the State Association and the local societies

in rapidly extending its subscription list and usefulness.

This report would be incomplete without reference to the Woman's Auxiliary of the A. M. A., which had a most enthusiastic meeting, appeared before the House of Delegates through the person of its charming President, Mrs. S. C. Red, of Texas, and showed innumerable signs of its active and effective co-operation with the medical profession of the whole country.

Dr. Haggard, of Nashville, was elected President of the A. M. A. for the coming term and Atlantic City was selected for the next place of meeting.

Respectfully,
SOUTHGATE LEIGH,
JOSEPH T. BUXTON,
EMORY HILL,
Delegates.

HOUSE OF DELEGATES.

The House of Delegates of the Medical Society of Virginia held its first meeting at Hotel Stonewall Jackson, Staunton, Va., at 9 A. M., October 15, 1924. The meeting was called to order by the First Vice-President, Dr. Hunter H. McGuire, of Winchester. Thirty-two delegates and fourteen councilors responded to roll call.

The Reports of the Secretary-Treasurer were read and ordered received and filed.

Report of Secretary.

Membership at time of last annual meeting	1,777	
New members since last meeting	112	
Members reinstated	14	
Total		1,903
Deaths	30	
Resignations	13	
Dropped as lost or for non-payment of dues	21	
Losses		64
Net total		1,839

We have been advised during the year of meetings of the Executive Council, Legislative and Publication Committees.

One of our delegates to the last meeting of the American Medical Association, Dr. J. Allison Hodges, was unable to attend on account of illness and the President, Dr. Chaffin, appointed Dr. Emory Hill, as alternate, none of the regular alternates being able to go.

At its meeting last June, the American Medical Association made a reapportionment of delegates from the State Societies to its House of Delegates, on the basis of one delegate for each 950 members or fraction thereof. We are advised that Virginia will be entitled to two instead of three delegates in the House of Delegates of the A. M. A. at its 1925 meeting. It is quite probable a new apportionment of delegates may be effected at the 1925 meeting and it is hoped we may secure a larger representation at that time.

During the year, we paid a fee in defense of a doctor against whom suit was brought for alleged civil malpractice and assisted Northampton County Medical Society in prosecuting a chiropractor charged with practicing medicine without a certificate from the State Board of Medical Examiners.

We have been advised of the organization of the Hanover County Medical Society, which wishes to secure a charter from the State Society at this meeting, and have also been advised of the reorganization of three county societies.

In response to notices sent presidents and secretaries of the various component societies, forty have advised us names of delegates to attend this meeting. This shows a fair degree of interest on the part of the societies, but there is lack of co-operation on the part of some. I would suggest that a visit from each councilor to the various societies in his district during the course of the year may be of assistance in arousing enthusiasm among the members.

The membership of several members residing in Bristol, on the Tennessee side of the State line, was questioned by the A. M. A., it being stated that they should be affiliated with the Tennessee rather than the Virginia Society. This was referred to the chairman of the Membership Committee and it was decided we would take no action in the matter as the members in question are in good standing in the Medical Society of Virginia.

It was with regret we learned a week ago that our President, Dr. Chaffin, on account of personal illness, would be unable to attend this meeting. He designated the first Vice-President, Dr. Hunter McGuire, of Winchester, as presiding officer.

We appreciate the co-operation which has been shown by a large number of our members and hope others will fall in line and assist in making this a bigger and better society.

Report of Treasurer.

This report is for only nine and a half months, the fiscal year closing December 31, 1924.

Balance in bank, Jan. 2, 1924		$2,081.42
Total receipts for nine and a half months. (Jan. 2, 1924-Oct. 13, 1924)	$ 13,152.37	
Total disbursements, Jan. 2, 1924-Oct. 13, 1924	11,017.97	
Balance for nine and a half months		2,134.40
Total in hand Oct. 13, 1924		$4.215.82

Receipts

Virginia Medical Monthly		
Advertising	$ 6,003.74	
Subs., non-members	148.40	
Subs., members ($2 each)	2,646.00	
Int. on bank balances	40.19	
Sundries	105.79	
		8,944.12
Medical Society of Virginia		
Dues less $2 from each member for journal	$ 3,959.00	
Int. on bank balances	40.18	
Sundries	209.07	
		4,208.25
		$13,152.37

Disbursements

Virginia Medical Monthly		
Preparation of journal	$ 6,253.85	
Salaries	1,420.00	
Postage	241.63	
Sundries	347.48	
		$ 8,262.96
Medical Society of Virginia		
Salaries	$ 1,420.00	
Postage	203.17	
Legal defence and Legs. Com.	411.00	
Sundries	720.84	
		2,755.01
		$11,017.97

AGNES V. EDWARDS, *Sec'y-Treas.*

The report of the Executive Council was read and ordered received and filed.

Executive Council

The Executive Council of the Medical Society of Virginia held a meeting in the Society's offices January 22, 1924, it having been found necessary to call a meeting at this time to secure the influence of its members, as representing all sections of the State, in opposing the bill presented by Senator Holt. The purpose of this bill was to impose on doctors a tax similar to the one which was repealed several years ago.

Present: Dr. R. L. Williams, chairman; Dr. L. T. Price, clerk; Drs. W. W. Wilkinson, Isaac Peirce, A. L. Gray, Thos. G. Hardy, F. H. Smith and P. K. Graybill, and Dr. Stephenson, chairman of the Legislative Committee of the Society. Most of the absent members of the Council explained by wire, letter and phone their inability to attend.

Dr. Williams explained the purpose of the meeting and stated that it would be necessary to have the co-operation of the doctors by actual presence before the respective finance committees, if they wished to accomplish anything.

Dr. Stephenson, as chairman of the Legislative Committee, was asked to tell what his committee was doing and told of a meeting held on the 11th, at which a suggestion was made of recommending a registration annually by each doctor and the payment of a registration fee as a substitute for the license tax, as replacing this tax on doctors would be a step backward. He stated that in this fight to keep the tax from being imposed on doctors, the Legislative Committee would need the financial end cared for as well as they would need to have the moral support of the doctors.

The members present were then called on individually for an expression of opinion. They did not think it necessary to offer any substitute measure, such as the annual registration of doctors, but to make a strong fight against the bill proposing the imposing of a license tax on doctors. Dr. Wilkinson said he saw no reason why there should be class legislation; doctors are fighting their own interests all the time in trying to improve health conditions in the State. The individual is profiting by the doctor's work in that he is constantly assisting the State and county health authorities to improve health conditions. He suggested that the councilors should get in touch with the presidents of the county organizations in their districts and get all the doctors to use their influence in fighting this bill. He stated that he was also much interested in the bill which is to come up which will greatly hamper doctors in rural communities in the dispensing of drugs. All the doctors spoke along these same lines and said they voiced the sentiments of the doctors in their sections of the State in opposing this bill; in spite of the fact that there are some doctors who would rather pay the license tax than to have the bother of fighting it.

Dr. Peirce moved that the Council draw up a resolution to present in person to the finance committees of the House and Senate, opposing replacing the license tax on doctors. This was seconded and adopted and a committee was appointed, composed of Dr. Peirce as chairman and Drs. Wilkinson, Gray and Price and Dr. Stephenson of the Legislative Committee, which drafted and presented the following resolution:

WHEREAS, It has been only a few years since the medical profession of Virginia brought before the legislative bodies of the State such overwhelming evidence that a special license tax on physicians and surgeons was wrong in principle, unjust to the profession, and opposed to the interests of the State, causing the repeal of the law levying such tax; and

WHEREAS, Conditions have not changed since the repeal of this law, except that any income arising from the practice of medicine is taxed by both State and Federal governments, so that the same arguments used to secure the repeal of this law remain in force and should operate to prevent its re-enactment; and

WHEREAS, We, the Executive Council of the Medical Society of Virginia, representing the medical profession of the State, are unanimous in the opinion that the levying of a special license tax would be returning to methods of raising revenue long since proven to be opposed to sound public policy;

THEREFORE, BE IT ENACTED, That the Medical Society of Virginia ask both branches of the State Legislature to see to it that Senate Bill No. 53 does not pass.

ISAAC PEIRCE,
Chairman Committee from Executive Council, Medical Society Virginia.

It was also moved and seconded that the members present get in touch with the absent councilors and with representatives of the county societies and have them send telegrams and letters to their constituents urging them to use their influence and to vote against having a tax imposed on doctors. A message was prepared which met with the approval of those present and was sent as night letters to forty-nine doctors representing all sections of the State.

Dr. Price presented the recommendation made by the Legislative Committee that an appropriation be made by the Society to pay $300 to Dr. Stephenson, chairman of the Legislative Committee, for his service during the present Legislature and that other members of the Legislative Committee should be reimbursed by the Society for their actual expenses in attending the meeting of the Committee on January 11.

It was moved and seconded that this be adopted.

It was also unanimously adopted that the Society should reimburse the members of the Council in attendance for their actual expenses in attending the meetings and also that it should bear the cost of the telegrams and night letters incident to getting in touch with the doctors back home.

It was moved and seconded that the dates of the Staunton meeting of the Society be set as October 14-17, 1924, inclusive. Carried.

It was unanimously decided that the chairman appoint a committee of three to pass on the proceedings of the Publication Committee of the Society after

they select a subject and leaders for a symposium for the Staunton meeting.

A letter was read from Dr. Olin West, secretary of the American Medical Association, asking that action be taken by our Society in the matter of the membership of several doctors who reside in Bristol, Va.-Tenn., who, through membership in the Sullivan-Carter-Johnson (Tenn.) Medical Society hold membership in the Tennessee State Medical Association and the American Medical Association. It is a violation of the constitution and by-laws of the two state medical associations and not in keeping with the provisions of the constitution and by-laws of the American Medical Association.

It was decided that the secretary should get in communication with the individual doctors, find out in which state they hold citizenship and practice and their individual wishes in the matter and advise Dr. West that this matter would be referred to the chairman of our Membership Committee as soon as we could ascertain the doctors' wishes in the matter.

Adjourned.

LAWRENCE T. PRICE, *Clerk.*

The report of the Legislative Committee, embodied in a letter from its Chairman, Dr. H. U. Stephenson, to the President, Dr. W. W. Chaffin, was read and ordered received and filed.

Report of Legislative Committee

Richmond, Va.,
Oct. 6, 1924.

Dr. W. W. Chaffin,
President, Medical Society of Virginia,
Pulaski, Va.

My Dear Dr. Chaffin:

I herewith submit the report of the Legislative Committee:

Nothing of any importance came up for consideration by the Committee during the year except matters that were presented to the last Legislature for consideration.

At the beginning of the session of the last General Assembly, a bill was introduced in the House and the Senate, reimposing a license tax on doctors; also two bills were introduced by the chiropractors establishing a special Board of Examiners for that particular cult. As soon as I heard that these bills had been introduced I called together the members of the Legislative Committee, the President of the Medical Society and several members of the Council, and invited the presidents of the various colleges of the State.

A conference was held to secure the indorsement of the medical profession and of the representatives of the leading schools of liberal arts in upholding the high standard of the medical profession in the State of Virginia. This proposition met with the hearty approval of all present, the general opinion being that every effort should be made to advance the standard in the State rather than to permit it to be lowered. The lowering of the standards could not be permitted as it might react on schools giving the pre-medical courses and cause the young men of the state to go to schools in other states for their medical training.

After the Conference, the Legislative Committee organized for an active fight against the reimposing of a license tax on doctors and against the Legislature creating a special Board of Examiners for the chiropractics.

I am pleased to report that our work was most successful in defeating all three bills. I have been connected with the Legislative Committee of the Medical Society for more than fifteen years, during which time we have had a number of hard battles to fight before the Virginia Assembly, but never in my experience have I known the medical profession to rally to the assistance of the Committee as they did during the last Legislature, and it was due largely to the individual members of the profession that we were able to defeat the reimposing of the tax on doctors and the creating an independent Examining Board for the chiropractors. The Richmond, Newport News and Norfolk doctors were especially active during the fight. I believe the doctors of the State are today lined up better for legislative work than ever before.

On behalf of the Committee, I want to thank the Presidents of the various schools of liberal arts of the State and the members of the medical profession for their loyal support and for the good work rendered in our fight during the last session of the Legislature.

Yours very truly,

H. U. STEPHENSON,
Chairman Legislative Committee of the Medical Society of Virginia.

The practice of chiropractic referred to in this report was discussed at length. It was pointed out that through the efforts of the Medical Society of Virginia, three bills drafted by chiropractors were defeated in the State Legislature. It was stated that the cities of Richmond and Norfolk had passed city ordinances prohibiting chiropractors practicing in these cities without complying with the laws of the State of Virginia, as embodied in Section 1618, Code of Virginia, 1916, and, on motion unanimously supported, the Secretary of the Society was instructed to transmit to the proper authorities of these two cities the approval by the Medical Society of Virginia of the action taken by them in this matter.

The question of physicians registering their diplomas with the Clerk of the Court of the county in which they expect to practice was brought up by Dr. J. A. Hodges, of Richmond. He stated that five years ago all physicians were required to register, but since then the law has not been enforced and recent graduates from medical colleges are practicing without having registered. On motion of Dr. A. L. Gray, of Richmond, the matter was referred to the State Board of Medical Examiners with a recommendation that there be printed on each certificate a statement that the certificate must be registered with the Clerk of the proper Court before the physician could legally practice.

In the absence of Dr. Wm. F. Drewry, Chair-

man of the Judiciary Committee, no report was received from this committee.

In the absence of Dr. Alex. G. Brown, Jr., Chairman of the Publication Committee, Dr. A. L. Gray, a member of the Committee, stated that while he had no report, the work of the Publication Committee was evidenced by an inspection of the journal and the report of the Treasurer as to its financial condition.

The report of the delegates to the American Medical Association was next called for. In the absence of Dr. Southgate Leigh, of Norfolk, who presented the report at the opening meeting of the Society, Dr. J. A. Hodges spoke of the excellent report made by Dr. Leigh and stated that it embodied many important matters which he thought should have the consideration of the Executive Council. It was recommended, therefore, that it be brought to the attention of the Council at a later meeting.

A telegram was read from Mr. D. P. Wine, Secretary of the Shenandoah Valley, Inc., extending a cordial welcome to the members of the Society and offering the visitors any aid possible to see the points of interest in the Valley.

Several communications were read, as follows:

From Dr. W. C. Woodward, Executive Secretary of the Bureau of Legal Medicine and Legislation of the American Medical Asocciation, asking the advisability of supplementary action by our Society of several measures which have received the approval of the House and Board of Trustees of the A. M. A. It was recommended that this be referred to the Executive Council.

From the Virginia Pharmaceutical Association resolutions relative to the seemingly unwarranted issuing of liquor prescriptions by some of the physicians of the State. It was recommended that this be received and filed.

From Dr. W. Moore Thompson, Chicago, a request for information about doctors in this State who would be entitled to notice in a book he is compiling on the subject, "The Doctor in Other Fields." This was ordered to be received and filed.

From the chairman of the Committee on Maternal Welfare of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons an appeal for the co-operation of our State Society in an endeavor toward improving conditions in obstetrics throughout the country. This, too, it was recommended, should be received and filed.

From the Secretary of the Danville Academy of Medicine, a request for opinions on certain matters pertaining to quarantine in scarlet fever. It was recommended that this be referred to the State Board of Health.

From a component society, information that one of its members had been expelled because he was using Abrams electronic machines. It was ordered that this be turned over to the Judiciary Committee for action.

It was noted that there were in hand several applications for membership in the State Society from doctors living in localities in which there are no active component societies. The secretary was instructed to refer these to the Membership Committee for action.

There being no further business, the House adjourned to meet Thursday morning, October 16, 1924, at 9 A. M.

EXECUTIVE COUNCIL.

The first meeting of the Executive Council of the Medical Society of Virginia was held October 15, 1924, at 10 A. M.

Present:

Dr. R. L. Williams, Chairman.
Dr. Isaac Peirce.
Dr. Hugh H. Trout.
Dr. Walter B. Martin.
Dr. C. P. Jones.
Dr. A. L. Gray.
Dr. Thos. G. Hardy.
Dr. J. A. Shackelford (alternate for Dr. D. H. Mason).
Dr. Hunter B. Spencer.
Dr. R. L. Page.
Dr. S. B. Moore (alternate for Dr. Hugh McGuire).
Dr. Francis H. Smith.
Dr. M. T. McCulloch (alternate for Dr. P. K. Graybill).
Dr. L. T. Price, Clerk.

Dr. Price suggested the question of having joint sessions of the Medical Society of Virginia in the future, which was discussed by members of the Council.

Motion by Dr. A. L. Gray, that in the future the program be limited to fifty selected papers. The manner of selecting will be by the first fifty titles received. Seconded by Dr. Peirce. Carried.

Dr. Gray called the attention of the Coun-

cil to the enormous amount of work done in the Secretary's office and recommended that an additional appropriation be made to take care of the situation. Dr. Gray made a motion that $1,000 per annum be appropriatel for that purpose. Seconded by Dr. Jones. Carried.

Respectfully submitted,

LAWRENCE T. PRICE, *Clerk.*

HOUSE OF DELEGATES

Owing to the unexpected attendance of Dr. Olin West, Secretary of the American Medical Association, there was a called meeting of the House of Delegates of the Medical Society of Virginia on Wednesday evening, October 15, at 8 P. M., at which time Dr. West was asked to make an informal talk before this body. The Second Vice-President, Dr. R. B. James, Danville, presided. A quorum being found present, the calling of roll was dispensed with.

Dr. West gave an interesting and highly instructive talk on the activities of the American Medical Association, the various State societies, and medical organization work generally. He stated that the great age of some societies and their flourishing condition evidenced the success to be accomplished by organization.

He told of Hygeia—the health magazine for laymen, published by the A. M. A.—and of the interest manifested in it in some sections. He suggested that it was the doctor's privilege to direct the minds of his clientele in the right paths in regard to health matters and that it is his opinion that much more can be accomplished by properly educating the layman than by fighting the cults.

Having been a state officer prior to his connection with the national association, Dr. West is exceptionally well qualified to give wholesome advice to the governing bodies of state organizations, which he did on this occasion in a most tactful and instructive manner.

This being the only business before the House, the meeting adjourned.

EXECUTIVE COUNCIL.

The second meeting of the Council was held at 9 P. M., October 15. All members being present, the chairman proceeded with the nominations for officers of the Society for the ensuing year, as follows:

Dr. H. H. McGuire, nominated by Dr. Jones, seconded by Dr. Smith, for President. Nominations closed and Dr. McGuire was unanimously elected by acclamation.

For First Vice-President, Dr. R. P. Bell, nominated by Dr. Shackelford, seconded by Dr. Price. Unanimously elected.

For Second Vice-President, Dr. L. E. Stubbs, nominated by Dr. Page, seconded by Dr. Shackelford. Unanimously elected.

For Third Vice-President, Dr. J. Bolling Jones, nominated by Dr. Wright, seconded by Dr. McCulloch. Unanimously elected.

For Secretary-Treasurer, Miss Agnes V. Edwards, nominated by Dr. Peirce, seconded by Dr. Smith. Elected by rising vote.

All members of the standing committees were re-elected with the exception of Dr. C. H. Rolston, member of the Legislative Committee, who is not now a member of the Society, and Dr. J. Shelton Horsley was elected to his place.

A communication referred by the House of Delegates from the Bureau of Legal Medicine and Legislation of the American Medical Association, pertaining to certain bills before the Senate of the United States regarding labeling of poisonous commodities, etc., was read, discussed and, on motion made by Dr. Gray and seconded by Dr. Moore, it was recommended that the Medical Society of Virginia place itself on record as approving the steps taken by the executive secretary of the Bureau of Legal Medicine and Legislation of the American Medical Association. Carried.

Dr. Southgate Leigh, one of our delegates to the American Medical Association meeting in Chicago, made a detailed report of the discussions during the meeting. The Council wishes to recommend to the House of Delegates that the Medical Society of Virginia go on record as disapproving the so-called "Life Extension Institute Bureaus," now being operated throughout the country and recommends that the Medical Society of Virginia, through its various channels, carry out an educational campaign for the promotion of periodical health examinations by the family physician. Dr. Gray made a motion to that effect, seconded by Dr. Moore; unanimously carried.

Dr. A. L. Gray read a letter from Dr. J. A. Wright, of Doswell, Va., who, with others, desired information regarding the organization of the Hanover County Medical Society. As it is at the present time, the physicians of Hanover County are members of the Richmond

Academy of Medicine. A ruling by the chair was to the effect that Dr. Wright be communicated with by the Secretary, to the effect that the proper course of procedure is for the Richmond Academy of Medicine to change its constitution to the effect of eliminating the physicians in Hanover County. Then the Hanover County Medical Society should make application to the Executive Council for a charter, which would be granted.

Dr. F. H. Smith called attention to the condition in Southwest Virginia regarding organization of societies. On motion by Dr. Price, seconded by Dr. Peirce, it was stated that it was the sense of the Council that the Councilor of the Ninth District be requested to exercise all effort to organize the physicians of Giles, Tazewell, Russell, Scott, Wise, Lee, Dickenson and Buchanan Counties into one organization and that Bland, Carroll and Grayson Counties be organized with the Southwestern Virginia Medical Society. Carried.

Respectfully submitted,

LAWRENCE T. PRICE, *Clerk*.

HOUSE OF DELEGATES

The House of Delegates of the Medical Society of Virginia met Thursday morning at 9 A. M., Dr. R. B. James, Second Vice-President, presiding.

Upon roll call a quorum was found present.

Reports of the first regular meeting and a called meeting of the House of Delegates were read and received as corrected.

Reports of the two meetings of the Executive Council were read and received as corrected.

At the first regular meeting of the Council it was recommended and carried, that in the future the program be limited to fifty papers. This recommendation was freely discussed and was amended to read, the program shall be limited to fifty selected papers.

Recommendation No. two, that in the future the Society should have joint sessions instead of medical and surgical sections. After free discussion, this was adopted after being amended that joint sessions are to be held if considered practicable by the Publication Committee.

Recommendation No. three was made, that, owing to the enormous amount of work done in the secretary-treasurer's office, an additional appropriation be made for assistant's salary, increasing same from $800 to $1,000 per annum. Adopted.

In accepting Dr. Leigh's report from the delegates to the American Medical Association, the House went on record as disproving the so-called Life Extension Institute Bureaus now being operated throughout the country, and recommended that the Medical Society of Virginia, through its various channels, carry on an educational campaign for the promotion of periodical health examinations by the family physician.

The following nominations for officers and standing committees were voted on collectively and adopted: President, Dr. Hunter H. McGuire, Winchester; First Vice-President, Dr. R. P. Bell, Staunton; Second Vice-President, Dr. L. E. Stubbs, Newport News; Third Vice-President, Dr. J. Bolling Jones, Petersburg; Secretary-Treasurer and Business Manager, Miss Agnes V. Edwards, Richmond.

All members of the standing committees were re-elected with the addition of Dr. J. Shelton Horsley as a member of the Legislative Committee to replace a former member, not now a member of the Medical Society of Virginia.

Dr. J. Staige Davis, University, was nominated to fill the vacancy occurring among the councilors from the State-at-Large.

The nominations made for councilors in the following districts were approved: Second District, Dr. Israel Brown, Norfolk; Fourth District, Dr. W. D. Kendig, Kenbridge; Sixth District, Dr. T. A. Kirk, Roanoke; Ninth District, Dr. C. B. Bowyer, Stonega.

Dr. J. A. Hodges stated that Dr. J. N. Upshur and Miss Edwards had called attention to the fact that a Medical Society of Virginia was chartered in 1824 and, in view of this fact, he made a motion, which was duly seconded, that the time and place of the next annual meeting be left to the Executive Council to determine, that proper recognition might be given to this event, should the Council deem it advisable. In this case, Dr. Hodges suggested that the next meeting might be held in Richmond and be in the form of a professional exhibit of medical progress, celebrating the one hundred and first anniversary of the Medical Society of Virginia.

The above report was presented to the general meeting of the Society at a meeting held

by special order at noon, Thursday, October 16.

Dr. J. N. Upshur moved the adoption of the report as a whole. Seconded by Dr. Isaac Peirce.

Dr. Garnett Nelson offered as an amendment that the first recommendation, "the program be limited to fifty selected papers," be changed to read "the program shall be limited to the first fifty papers." Seconded by Dr. Beverley R. Tucker.

After the amendment to the recommendation was freely discussed, Dr. K. D. Graves moved that the formation of the program be left to the Program Committee. Seconded by Dr. T. G. Hardy.

Dr. C. M. Miller, further amended that the Program Committee formulate its own rules for making the program and announce them to the Society at its earliest convenience. This was accepted by Dr. Nelson and carried, the whole report being adopted as amended.

There being no further discussions, the meeting adjourned.

Immediately following the general meeting, the new Executive Council met and elected Dr. A. L. Gray, Richmond, Chairman, and Dr. L. T. Price, Clerk.

Meeting of Woman's Auxiliary to the Medical Society of Virginia, Staunton, Va., October, 1924.

The Woman's Auxiliary to the Medical Society of Virginia met in Staunton in connection with the Medical Society of Virginia, on Wednesday, October 15th, at 10:30 A. M., at the Stonewall Jackson Hotel. A good attendance was present from all parts of Virginia. The State President, Mrs. R. Lloyd Williams, of Norfolk, presided, and the meeting was opened with prayer by Mrs. A. L. Tynes of Staunton.

The address of welcome was made by Mrs. F. M. Hanger, the entertainment chairman, which was responded to by the president. The regular routine business was gone through with, and reports of various district chairmen were received, which were very encouraging, especially those from Norfolk and Richmond.

A very interesting report of the National Convention at Chicago was made by Mrs. Southgate Leigh, of Norfolk. This report outlined the work which may be done by the Auxiliary. The Auxiliary endorsed several matters of health improvement which are being put forward by the Medical Society for the betterment of mankind; and also expressed various ways by which conditions in jails, almshouses, etc., can be improved.

After the regular business session the election of officers was held, resulting in the following: Mrs. Hunter H. McGuire, Winchester, President; Mrs. J. Allison Hodges, Richmond, First Vice-President; Mrs. J. M. Shackelford, Martinsville, Second Vice-President; Mrs. T. J. Hughes, Roanoke, Third Vice-President; Mrs. H. T. Miller, Washington, Treasurer; Mrs. B. B. Dutton, Winchester, Secretary.

The Entertainment Committee provided the visiting ladies with a most enjoyable program while in Staunton. Wednesday afternoon, there was a delightful automobile trip through Waynesboro-Basic to the top of Shenandoah Mountain, from which the view in all directions is wonderful. In the afternoon a reception was tendered the guests at Mary Baldwin College. The visitors enjoyed the hospitality of this historical institution, and also the splendid musical program furnished by the girls in the school, after which a delightful salad course was served.

On Wednesday night the delegates attended a musical given at Stuart Hall. The numbers were rendered by the teachers of the school, and an evening of rare entertainment was enjoyed. The day's program ended with a buffet supper and dance at Stonewall Jackson Hotel.

Places of medical interest at Staunton, such as Western State Hospital, and the Institution for the Deaf and Blind were visited. The visit to the Grottoes, Thursday afternoon, was a real treat, and to those who had never visited this section of Virginia, the drive from Staunton to the cavern was one of such scenic beauty that it will be long remembered. The cavern with its unusual formations, its beauty of coloring and immense proportions, was indeed a surprise to those who had not seen it.

On our return to Staunton, the delegates viewed the dress parade at the Staunton Military Academy, and that night the doctors and their ladies were treated to a most enjoyable banquet by the Staunton Military Academy, and those who love to think of Virginia fried chicken and country ham will long remember the hospitality enjoyed around this festive board. The informal dance in the gymnasium

of the academy, which followed the banquet, and a drive to the top of Shenandoah Mountain on Friday brought to a close one of the most delightful seasons of enjoyment that it has been our pleasure to experience.

Florence S. Hughes,
(Mrs. T. J. Hughes),
Va. Press Chairman.

The Medical Association of the Valley of Virginia

Held its annual meeting at a dinner, in connection with the meeting of the Medical Society of Virginia, in Staunton, October 15, and elected the following officers for the ensuing year: President, Dr. D. M. Kipps, Front Royal; vice-presidents, Dr. P. W. Boyd, Winchester; Dr. C. P. Harshbarger, Port Republic, and Dr. Lanier D. Pole, Hot Springs; secretary, Dr. Alex. F. Robertson, Jr., Staunton, and treasurer, Dr. J. M. Biedler, Harrisonburg.

The Northern Neck Medical Society

Held its regular meeting in Fredericksburg, Va., October 23, Dr. G. B. Harrison, of that city, presiding. There was an attendance of approximately fifty physicians. A number of Washington, D. C., and Richmond doctors read papers. It was decided to hold the next meeting in Warsaw, Va., and the following officers were elected for the coming year: President, Dr. R. E. Booker, Lottsburg; vice-president, Dr. B. A. Middleton, Emmerton; secretary, Dr. M. C. Oldham, Lancaster; treasurer, Dr. C. T. Peirce, Nuttsville.

The Amelia County Medical Society

Held its first meeting in three years on October 10, 1924, ta which time Dr. J. M. Habel, Jetersville, was elected delegate to the State Society meeting. All the members in the county except one were present. The society agreed upon uniform charges for services and each member was given a list of doctors' "dead beats" in the county. Dr. P. T. Southall, Amelia, was elected president, and Dr. Geo. A. Arhart, Amelia, secretary.

The Sussex County Medical Society

Met on October 9th and elected Dr. Joel Crawford, Yale, delegate to the State Society meeting and Dr. H. G. Stoneham, Waverly, alternate. Dr. T. M. Raines, Wakefield, was re-elected president, and Dr. C. P. Neblett, Waverly, secretary.

The Louisa County Medical Society

Held a meeting on October 2nd, at which time Dr. H. S. Daniel, Louisa, and Dr. W. C. Mason, Gordonsville, were elected delegate and alternate, respectively, to the Staunton meeting of the Medical Society of Virginia. Officers elected at this meeting for the ensuing year are: President, Dr. H. W. Judd, Mineral; vice-president, Dr. E. Barbour Pendleton, Cuckoo; secretary-treasurer, Dr. W. C. Mason, Gordonsville.

The Roanoke Academy of Medicine,

At its annual meeting on October 6th, elected Dr. S. Beverly Cary, Roanoke, president for the ensuing year, and Dr. Frank A. Farmer, also of Roanoke, secretary-treasurer.

The Truth About Medicine

In addition to the articles enumerated in our letter of August 29th, the following have been accepted:

Abbott Laboratories
- Metaphen
  - Metaphen Solution 1:5,000.

Swan-Myers Company
- Sterile Ampules of Mercury Benzoate, 2 per cent.
- Sterile Ampules of Mercury Biniodide (Oil Solution).
- Sterile Ampules of Mercury Salicylate, 0.097 Gm., (1½ Gr.)
- Sterile Ampules of Mercury Salicylate, 0.065 Gm., (1 Gr.)
- Sterile Ampules of Mercury Succinimide, 0.01 Gm., (1/6 Gr.)

NEW AND NONOFFICIAL REMEDIES

Medicinal dyes—The dyes which are used in medicine may be divided into five classes: (1) the azo dyes, of which scarlet red medicinal and scarlet red sulphonate are described in New and Nonofficial Remedies; (2) the acriflavine dyes, such as acriflavine, neutral acriflavine and proflavine; (3) the fluorescine dyes, usually combined with metal mercury such as mercurochrome-220 soluble and flumerin; (4) the triphenolmethane or rosaniline series, such as gentian violet, crystal violet, methyl violet and fuchsin, and (5) miscellaneous dyes, such as methylene blue, phenolsulphonephthalein and tetrabromphenolphthalein. In order to obtain comparable results when employed clinically, dyes should be of constant composition. The triphenolmethane (rosaniline) dyes include fuchsin and the closely related violet dyes, gentian violet, crystal violet and methyl violet. Of these, gentian violet is the one that has been used chiefly in medicine. It is stated to have the property of great penetration; to be bactericidal also bacteriostatic in vivo toward selective organisms. Its chief use has been in the treatment of infections of the pleural cavity and of the joints. The intravenous use of gentian violet has also been proposed in staphylococcus septicemia, chronic cystitis, osteomyelitis.

Gentian Violet Medicinal.—A mixture of pentamethylpararosaniline and hexamethylpararosaniline chlorides. For direct application, a solution of from 1:500 to 1:1,000 may be employed; for instillation,

a 1:10,000 solution. For intravenous use, 5 Mg. per Kg. of body weight, injected in 0.5 per cent solution has been used.

Gentian Violet Improved Medicinal—A brand of gentian violet medicinal-N. N. R. Coleman and Bell Co, Norwood, Ohio.

Gentian Violet Medicinal-"National"—A brand of gentian violet medicinal N. N. R. National Aniline and Chemical Co., New York.

Insulin-Stearns Quadruple Strength — Insulin-Stearns (see Journal A. M. A., June 14, 1924, p. 1937) marketed in 5 c.c. vials containing forty units in each c.c. Frederick Stearns and Co., Detroit.

Sulpharsphenamine-Squibb, 1 Gm. Ampules—Each ampule contains sulpharsphenamine-Squibb (see New and Nonofficial Remedies, 1924, p. 68) I Gm. E. R. Squibb and Sons, New York.

Sulpharsphenamine-Squibb, 3 Gm. Ampules—Each ampule contains sulpharsphenamine-Squibb (see New and Nonofficial Remedies, 1924, p. 58) 3 Gm. E. R. Squibb and Sons, New York.

Diphtheria Toxin-Antitoxin Mixture (New Formula)—Diphtheria toxin-antitoxin mixture-Squibb (see New and Nonofficial Remedies, 1924, p. 298) marketed in packages of thirty 1 c.c. ampules. E. R. Squibb and Sons, New York.

Antistreptococci Serum-Squibb—Antistreptococcus serum-Squibb (see New and Nonofficial Remedies, 1924, p. 305), marketed in packages containing one 10 c.c. syringe; in packages containing one 50 c.c. vial. E. R. Squibb and Sons, New York.

Antistreptococcic Serum Rheumatic-Squibb—Antistreptococcic serum rheumatic-Squibb (see New and Nonofficial Remedies, 1924, p 305), marketed in packages of one 20 c.c. vial; in packages of one 50 c.c. vial. E. R. Squibb and Sons, New York. (Journal A M. A., Sept. 6, 1924, p. 767).

Ampules Pituitary Solution-Wilson, 0.5 c.c.—Each ampule contains pituitary solution-Wilson (see New and Nonofficial Remedies, 1924, p. 229) 0.5 c.c. Wilson Laboratories, Chicago.

Thiosinamine.—Thiosinamina. Allylthiourea. Thiosinamine is being used against arsphenamine dermatitis. This use is still in the experimental stage. Thiosinamine was originally introduced to promote absorpton of scar tissue, lymphatic swellings, etc. Its restricted use indicates that it has little if any value for this purpose. Although it is usually well borne, except for its bitter taste and acid eructation, it may produce toxic systemic effects, and these may set in suddenly after it has been used for a time without toxic effects. (Journal A. M. A., Sept. 13, 1924, p. 843).

Oridine—The calcium salt of the iodized fatty acids of cottonseed oil. It contains from 23 to 25 per cent of iodine in organic combination. Oridine acts in the system similarly to the inorganic iodides. The iodized fatty acid radicle of oridine is not decomposed in the stomach but a part of the iodine is split off when it enters the intestine. The undecomposed portion is readily absorbed and, as in the case of other fats, it is largely deposited in the tissues where it is slowly split up. As with other iodized fats, the action of oridine is exerted more slowly than that of inorganic iodides. Oridine is marketed in powder and as oridine tablets for the prophylaxis of goiter, containing oridine equivalent to iodine 0.01 Gm. Eli Lilly and Co., Indianapolis. (Journal A. M. A., Sept. 20, 1924, p. 921).

Rabies Vaccine (human), Phenol Killed—An antirabic vaccine (see New and Nonofficial Remedies, 1924, p. 306) prepared according to the general method of David Sempel. The product as sold contains brain substance 2 per cent, and phenol 0.5 per cent suspended in physiological sodium chloride solution. It is marketed in packages of 14 vials and a syringe, and in a package containing 21 vials and a syringe. Jensen-Salsbery Laboratories, Inc., Kansas City, Mo. (Journal A. M. A., Sept. 27, 1924, p. 1001).

PROPAGANDA FOR REFORM

BioFood—This is a "patent medicine" combination put out by a concern that seems to go under various names: "Biochemical Food Products Corporation," "Bio-Products Company," and "BioFood Corporation." BioFood has been shrewdly and cleverly marketed. The impression is given that the stuff is a food and not a medicine. Its high price —ten dollars a treatment—impresses the public with its value. The treatment consists of a box labeled "A" and two bottles labeled, respectively, "B" and "C." BioFood is sold with the claim that our bodies are composed of twelve tissues containing sixteen elements, that our foods are deficient in these elements and that BioFood supplies this deficiency and thus "builds up the body by supplying all the elements which nature intended man to have and thus gives nature a chance to create her own antitoxins and effect a cure." BioFood has been advertised extensively in newspapers, in self-styled medical journals and by cruelly mendacious advertisements in the Chicago street cars. The A. M. A. Chemical Laboratory reports that BioFood "A" may be considered to be composed essentially of milk, sugar and flavoring in which has been incorporated small amounts of iron, calcium and manganese salts and phosphate, either as such or in combination such as glycerophosphate. The Laboratory found BioFood "B" to be tablets which may be considered to consist essentially of potassium acetate, sodium chlorid, sodium sulphate and sodium citrate. BioFood "C" was a liquid resembling solution of iron and ammonium acetate, U. S. P., modified by the addition of very small amounts of calcium, magnesium and sodium and phosphate compounds. (Journal A. M. A., Sept. 6, 1924, p. 782).

The Ban on Heroin—As long ago as 1917, the Council on Pharmacy and Chemistry deleted heroin from its handbook of Useful Drugs, saying: "The Council holds that heroin has no advantage over morphin; that it has every disadvantage of morphin; and that on the whole its introduction has been harmful, in that it furnished a specious means on the one hand of avoiding the well founded popular fears of morphin by substituting another habit-forming drug." In 1920 the House of Delegates resolved, "That heroin be eliminated from all medicinal preparations; that it should not be administered, prescribed or dispensed; and that the importation, manufacture or sale of heroin should be prohibited in the United States." The recent Congress enacted, June 7, 1924, a bill prohibiting the importation of opium intended for the manufacture of heroin. The Federal Narcotic Control Board has announced that it will not authorize the importation of any opium intended to replace opium or morphin thereafter converted into heroin. This will prevent the open manufacture of heroin in the United States, and as none can be lawfully imported, heroin will soon disappear from the legitimate market. (Journal A. M. A., Sept. 6, 1924, p. 784).

"P-O-4" Not Admitted to N. N. R.—The Council on Pharmacy and Chemistry reports that "P-O-4" is the proprietary nondescriptive designation under which Lehn and Fink, Inc., New York, market a preparation alleged to be a mixture of two parts of tribasic magnesium phosphate and one part of tribasic calcium phosphate. The preparation is claimed

to be a "therapeutically balanced" mixture which is "A New Antacid for symptoms of hyperacidity, such as 'acid' stomach, pain, heartburn, acid regurgitation, distress and gas." The Council explains that, in order that a correct estimate of the therapeutic value of tertiary magnesium phosphate and tertiary calcium phosphate may be gained, it is important that physicians use them under their proper names and base the selection of one or the other on the requirements of the particular patient. The Council found "P-O-4" inadmissible to New and Nonofficial Remedies because the use of a mixture of tertiary calcium phosphate and tertiary magnesium phosphate in fixed proportions under a nondescriptive name is irrational and the claim that it is "a therapeutically balanced" mixture is unwarranted. (Journal A. M. A., Sept. 13, 1924, p. 861).

The Forthcoming U. S. Pharmacopeia. The committee elected in May, 1920, for the revision of the United States Pharmacopeia has practically completed its work. The responsibility for the scope of the new book was placed on the twenty-one physician members of the committee so that the new edition should be more fully representative of the therapeutically valuable drugs than formerly. The number of medicinal substances to be included in the book is less than 650. Among the additions are acetyltannic acid, acetylsalicylic acid, barbital, phenobarbital, albumin tannate, amidopyrin, strong silver protein, mild silver protein, arsphenamin, ethylaminobenzoate, barium sulphate, calcium iodobehenate, carbon tetrachlorid, carbromal, chloramin, chlorinated paraffin, dextrose, dichloramin, epinephrin, neoarsphenamin, chaulmoogra oil, phenolsulphonphthalein, procaine hydrochlorid, quinidine sulphate, quinine ethylcarbonate, sodium diphosphate, barbital sodium, whiskey, brandy, thyroxin. Most of these are products of recognized therapeutic or diagnostic usefulness. Many of the preparations are already described in Useful Drugs and a still larger number are included in New and Nonofficial Remedies. In many cases the descriptions and standards in New and Nonofficial Remedies have been adopted for the new Pharmacopeia. In the new book obligatory biological tests are given for the following drugs and their preparations: aconite, cannabis, digitalis, epinephrin solution, ergot, pituitary solution, squill and strophanthus. With many of the useless or doubtfully valuable drugs eliminated and with the addition of a number of substances of demonstrated merit, the new Pharmacopeia will deserve greater support from the medical profession than has been the case with previous editions of the book. (Journal A. M. A., Sept. 20, 1924, p. 923).

The Scientific American on Abrams' "Electronic Reactions"—In October, 1923, the Scientific American announced that it was undertaking an investigation of the "Electronic Reactions of Abrams" and electronic medicines in general. The Scientific American has published twelve papers and the last has now appeared. The result of the exhaustive investigation of the committee may be summed up: The electronic reactions of Abrams and electronic medicine in general is found utterly worthless. This is expressed a little more in detail in the opening paragraph of the last article: "The so-called Electronic Reactions of Abrams do not exist—at least objectively. They are merely products of the Abrams practitioner's mind. These so-called reactions are without diagnostic value. And the Abrams oscilloclast, intended to restore the proper electronic conditions in the diseased or ailing body, is barren of real therapeutic value. The entire Abrams' technique is not worthy of serious attention in any of its numerous variations. At best, it is all an illusion. At worst, it is a colossal fraud." (Journal A. M. A., Sept. 20, 1924, p. 939).

Mercurochrome-220 Soluble and Gentian Violet Intravenously—Reports on the intravenous use of mercurochrome-220 soluble and of gentian violet have been published. These drugs, when administered intravenously, are used in recently prepared aqueous solution. Of mercurochrome, 5 mg. per kg. of body weight appears to be generally used. It is used in a 1 per cent solution. Of gentian violet, 0.25 per cent of an aqueous solution is used; the dosage being 5 mg. per kg. of body weight. Mercurochrome-220 soluble marketed by Hynson, Westcott and Dunning, Baltimore, gentian violet medicinal-"National" of the National Aniline and Chemical Co., New York, and gentian violet improved medicinal of Coleman and Bell Company, Norwood, Ohio, have been accepted for New and Nonofficial Remedies. (Journal A. M. A., Sept. 20, 1924, p. 942).

Hectine—Hectine is said to be sodium benzosulphoaminophenyl-arsenate and, therefore, is similar in composition to the product "Atoxyl." Atoxyl is one of a class of arsenical preparations, the use of which has been generally discontinued in favor of the products of the arsphenamin types. Hectine has not been accepted for New and Nonofficial Remedies, nor has the American agent, George J. Wallau, Inc., requested such recognition by the Council on Pharmacy and Chemistry. (Journal A. M. A., Sept. 20, 1924, p. 942).

Asthma-Tabs—The Asthma-Tabs Laboratories of Kansas City, Mo., conducts a piece of mail-order quackery in the sale of an alleged cure for asthma known as "Asthma-Tabs." The point of contact between quack and victim is, as usual, the venal or careless newspaper or magazine which sells its advertising space to herald the false statement of the Asthma-Tabs promoter. As usual, trial treatments are offered at a sliding scale of prices. The A. M. A. Chemical Laboratory analyzed this alleged "asthma cure" and concluded that each "Asthma-Tab" contains the equivalent of: potassium iodid, 0.35 gm.; potassium sulphate, 0.15 gm.; arsenic trioxid, 0.0005 gm. Thus this asserted new discovery contains as its essential constituents two drugs—potassium iodid and arsenic trioxid—that have been used for a generation in the treatment of asthma and may easily both be harmful and dangerous when used without care or in ignorance of their action. (Journal A. M. A., Sept. 27, 1924, p. 1018).

Guaisodide—No report of Guaisodide of George A. Breon has been published by the Council on Pharmacy and Chemistry and no product of the firm has been accepted for New and Nonofficial Remedies. Many of the preparations of the Breon Company are intravenous specialties marketed under nondescriptive proprietary names. Some of these bear a strong resemblance to intravenous specialties that have been the subject of adverse reports by the Council on Pharmacy and Chemistry. Thus Guaisodide is similar in composition and claims to "Venodine." which was reported on adversely by the Council. Like Venodine, Guaisodide is stated to be a solution containing sodium iodid, guaiacol and creosote. The report of the Council on Venodine brings out that there is no reason for resorting to the intravenous administration of iodids. Further, the Council pointed out that the indiscriminate administration of iodids for pulmonary tuberculosis is strongly to be condemned. Also, the Council holds that there is no evidence to warrant the intravenous administration of guaiacol and creosote and that the combination of two such similar substances as creosote and guaiacol (the second a constituent of the first) is irrational. (Journal A. M. A., Sept. 27, 1924, p. 1021).

Virginia Medical Monthly

FOUNDED BY LANDON B. EDWARDS, M. D., APRIL, 1874.
OWNED BY THE MEDICAL SOCIETY OF VIRGINIA.
PUBLISHED BY THE PUBLISHING COMMITTEE.

A. G. BROWN, Jr., M. D., Chairman, Richmond, Va.

B. R. TUCKER, M. D., Richmond, Va.
P. W. HOWLE, M. D., Richmond, Va.
E. L. KENDIG, M. D., Victoria, Va.
A. L. GRAY, M. D., Richmond, Va.

ALEX. G. BROWN, Jr., M. D., Editor.

AGNES V. EDWARDS, Business Manager and Secretary-Treasurer.

All correspondence regarding editorial matters, articles, advertisements, subscription rates, etc., should be addressed to the Journal.

All advertisements are received subject to the approval of the Council on Pharmacy and Chemistry of the American Medical Association.

Subscription Price: $2.00 per annum in advance.
Single Copies 20c.

Vol. 51 NOVEMBER, 1924 No. 8

Editorial

Direct Blood Stream Infection From Diseased Tonsils.

From Crowe's paper* it appears that prior to 1916, he held that the tonsils or adenoids were not responsible for general systemic infection, such as local or general arthritis, unless there was evident enlargement of the lymph glands in the neck. Holding this view, patients were advised, in the absence of such glandular enlargement, that an operation for the removal of tonsils and adenoids was not indicated. But later he found these patients suffering with systemic disturbance, without evident glandular enlargement in the neck, were operated upon elsewhere and received manifest relief from systemic symptoms. This observation aroused an interest in the subject and Crowe began a histologic study of a collection of tonsils and adenoids removed from 3,000 patients during the past ten years in order to determine whether or not a direct infection by the vascular system could be demonstrated. The generally accepted histologic factors found in chronic tonsillitis are: (1) a loss of epithelium on the surface or in the crypts; (2) the presence of masses of keratinized epithelial cells in the crypts; (3) hyperplasia of endothelial cells; (4) accumulation of plasma cells, lymphocytes and leukocytes around the margin of the crypts; (5) evidence of hemorrhage in the parenchyma or in the lumen of the crypts; (6) the presence of polymorphonuclear cells and lymphocytes in the epithelium lining of the crypts; (7) the presence of bacteria in the crypt epithelium and in the parenchyma of the tonsil (probably in the lymph channels or blood vessels); (8) thickening of the capsule and increased fibrosis of the trabeculae. The foregoing specifications of pathology in chronic tonsillitis, as well as in acute tonsillitis, are not complete without adding the invariable association in acute, and frequent association in the chronic, of the visible enlargement of the lymph glands of the deep cervical group near the angle of the jaw. By this sign the connection between the diseased tonsil and systemic disturbance was identified.

Crowe's later study of the diseased tonsils showed that the epithelium on the surface and the epithelium lining the crypt differ in blood supply. The epithelium on the surface of diseased tonsils was unchanged, but there was destruction and ulceration of the epithelium lining the crypt and the thrombosis of blood vessels was found. These findings suggest direct blood stream infection. Crowe goes on to say that the crypt has papillae and rich network of capillaries. The destruction of the crypt epithelium is a very common find in chronic tonsillitis; in some the ulcerated areas in the crypt were healed; in some there were definite chronic ulcers. These ulcerated areas were surrounded with plasma cells, lymphocytes and leukocytes. A rich network of the thrombosed capillaries and lymph channels around the margin of the ulcer appeared to be favorable for blood stream infection as well as for lymph stream.

*Archives of Internal Medicine, April 15, 1924.

Diagnosis of Diseases of the Mediastinum.

The mediastinum is often overlooked in physical diagnosis. Its diseases, or symptoms arising from the mediastinum, may be unrecognized as such unless gross obtrusive signs or symptoms appear. It is no easy matter to make a differential diagnosis of diseases of the mediastinum. It is necessary for the clinician to bring into play every agency obtainable. Physical diagnosis is at its highest level in this differentiation. The physical diagnostician may need to employ every power of his art to satisfy the requirements of a baffling group of symptoms arising from the pathology in one or another arbitrarily subdivided parts of the mediastinum. Let us recall the contents of these subdivisions, remembering the mediastinum includes the space bounded in front by

the sternum and laterally by the reflections of the pleurae and behind by dorsal vertebrae.

The Superior Mediastinum:

(a) The arch of the aorta and the vessels arising from it.
(b) The innominate vein.
(c) The superior vena cava.
(d) The thymus gland.

It is traversed by the trachea, esophagus, thoracic duct, vagus, phrenic and sympathetic nerves.

The Anterior Mediastinum (very shallow, lying in front of the pericardium).

(a) Lower portion of the thymus.
(b) A few lymphatic glands.

The Middle Mediastinum:

(a) The heart and its pericardium.
(b) The termination of the inferior vena cava.
(c) The roots of the lungs (partly).

The Posterior Mediastinum:

(a) Esophagus.
(b) The descending aorta.
(c) The thoracic duct, the azygos veins.
(d) The pneumogastric and sympathetic nerves.

The gland groups of the mediastinum are: (a) anterior mediastinal glands, situated between sternum and pericardium; (b) superior mediastinal glands, situated in front of the upper part of the pericardium, the arch of the aorta and the left innominate vein; (c) the posterior mediastinal glands situated along the course of the aorta and esophagus; (d) the bronchial glands situated along the main bronchi and the roots of the lungs in front and behind the bifurcation.

With these important anatomical structures, coursing through these compartments of the mediastinum, it is rather easy to understand the train of symptoms that may arise in mediastinitis (simple, indurative, suppurative, or tuberculous); in mediastinal hemorrhage; in mediastinal emphysema; or mediastinal tumors.

Pressure symptoms are important mediastinal symptoms:

(a) *Veins*: Obstruction and pressure on the superior vena cava results in cyanosis of the face, injection of the conjunctiva, exophthalmos, edema of the face, neck, upper part of the thorax and arms, and distention of superficial veins in face, neck and trunk;

(b) *Vena azygos major*: Dilatation of the intercostal veins, right-sided hydrothorax, and possibly pericardial effusion;

(c) *Arteries*: Pressure on the aorta and its branches causes unequal pulse beats in radial and carotid and dilatation of the left heart; pressure on the pulmonary artery results in engorgement of the right heart with its symptoms.

The Air Passages: Pressure on trachea produces stridor, dyspnoea, persistent coughing and occasionally hemoptysis;

Esophagus: Pressure here produces dysphagia and localized pain resulting in regurgitation of food, emaciation and weakness;

Thoracic duct: Pressure causes chylothorax, chylous ascites and emaciation;

Heart and Pericardium: Pressure results in displacement, irregular action and effusion of the pericardium;

Nerves: Compression (1) on the vagus results in bradycardia or, if sufficiently blocked, tachycardia, nausea, vomiting and intestinal disturbances; (2) on the recurrent laryngeal nerves causes stridor, inspiratory dyspnoea, and resounding cough; (3) on the sympathetic nerves causes contraction and dilatation of the pupil on the affected side; (4) on the phrenic nerve produces hiccough; (5) on the intercostal nerves results in a neuralgic pain.

Simple mediastinitis may be associated with pericarditis, pleurisy, pneumonia or syphilis; indurative mediastinitis, with adhesions and compression symptoms, may result from previous pathology of an acute nature; suppurative mediastinitis may ensue as a result of infections of adjacent organs or structures in the cavity. Tuberculous disease of the gland group, traversing the mediastinal subdivisions, may result in symptoms. Tuberculous mediastinitis is a common condition in children, associated with glands of the neck.

Tumors of the mediastinum may be benign or malignant. The benign tumors include (1) lipoma, (2) fibroma, (3) osteoma, (4) chondroma, (5) dermoid cysts and intrathoracic goiter. The primary malignant tumor is sarcoma and the secondary is carcinoma.

From such pathology, in addition to fever and blood changes, occurring in the inflammatory processes, the pressure symptoms appear according to the number, nature, position and degree of structures involved. The physical signs, likewise, depend upon the size and press-

ure effects of the inflammation or tumor mass. Percussion discloses a widening of the mediastinal area by dullness; auscultation will reveal various signs according to the pressure effects in the lungs, pleurae, heart and pericardium. The X-rays, the laboratory examinations, the laryngoscopic and ophthalmoscopic examinations are also important.

After all, the history, the clinical evolution, the symptomatology, the physical examination, together with laboratory studies, are all quite necessary in arriving at a trustworthy. diagnosis in mediastinal diseases.

REFERENCE
Phillips in Annals of Clinical Medicine, May, 1924, pp. 409-415.

Our New President

Hunter Holmes McGuire was born in Winchester, Va., on March 30th, 1875. He is the son of Dr. Wm. P. McGuire and the grandson of Dr. Hugh Holmes McGuire. He is the nephew and namesake of the late Hunter McGuire, of Richmond, Va. By birth, rearing, precept, and tradition, there seemed no course open to this young man other than the profession of medicine. So, having completed his academic education at the Shenandoah and Winchester Academies, he came to Richmond, and under the eye of his illustrious uncle, graduated from the University College of Medicine in 1897.

HUNTER HOLMES McGUIRE, M. D.
President Medical Society of Virginia.

Having decided upon a career in the special work upon diseases of the eye, ear, nose and throat, he took post-graduate courses at Johns Hopkins Hospital, the New York Eye and Ear Infirmary and later at the Philadelphia Polyclinic. Upon the completion of his post-graduate work he established himself in Winchester, where he has since practiced.

The enviable place he has won for himself in the profession is attested by the positions of trust that he has held: President of Winchester Memorial Hospital since its organization, in 1903; Past President of the Virginia Society of Oto-Laryngology and Ophthalmology; First Vice-President of the American Academy of Ophthalmology and Oto-Laryngology in 1923; Past President of the Valley Medical Association; Member of the American Ophthalmological Society, and American Academy of Ophthalmology and Oto-Laryngology; Fellow of the American College of Surgeons; Member of the American Medical Association and Southern Medical Association; Eye and Ear Surgeon to the Winchester Memorial Hospital and Baltimore and Ohio Railway Company.

He has always taken an active part in all the civic movements of Winchester. He is a member of the Handley School Board and a Trustee of the Shenandoah Valley Academy.

There was probably never before a more popular choice by the Council for its president. As Hunter McGuire stood on his crutches before the large audience in Staunton, while acting for the absent president, one could but wonder at the sheer courage of the man. In spite of handicaps that would have made most men turn back, he had won his way to the most coveted position in the profession of his State and received the highest honor his fellows could bestow upon him.

W. L. P.

News Notes

The Staunton Meeting

Of the Medical Society of Virginia is one long to be remembered for the generous hospitality extended us. The only regret of the meeting was the absence of our President, Dr. W. W. Chaffin, who was detained at home on

account of personal illness. In his absence, the first vice-president, Dr. Hunter H. McGuire, of Winchester, presided. The other vice-presidents, Drs. R. B. James, Danville, and O. T. Amory, Newport News, assisted.

Exclusive of the ladies and the commercial exhibitors, there was a registered attendance of three hundred and seventy-two and all sections of the State were represented. Dr. Alex. F. Robertson, Jr., general chairman, and Mrs. Franklin M. Hanger, chairman of the Ladies' Committee, with their able assistants, were on hand constantly, looking after the pleasure of the visitors. The weather seemed especially ordered and added to the enjoyment of the lovely rides.

In the golf tournament, which was held on the first day, Dr. Thomas W. Murrell, Richmond, won against nine competitors, and holds for a year the cup donated in 1923 by the Roanoke Academy of Medicine. It is to be held permanently by the winner of two consecutive tournaments at the State meetings. Dr. W. B. Porter, Roanoke, was runner-up in this year's tournament.

The Woman's Auxiliary held its regular meeting on Wednesday, the 15th, and was largely attended. A report of the meeting appears in this issue of the journal.

The same day a reception was tendered the ladies at Mary Baldwin College and a musicale was given for them at Stuart Hall in the evening. A number of the visitors availed themselves of the invitation extended by the Rev. Mr. A. M. Fraser and his wife, to visit the manse of the First Presbyterian Church, the house in which Woodrow Wilson was born. Upon conclusion of the scientific sessions, a buffet dance was given at Hotel Stonewall Jackson. Another interesting feature on Wednesday, was the get-together supper of the alumni of the Medical College of Virginia, which was largely attended.

On Thursday, the 16th, the visitors were given the choice of a trip through the Grottoes of Shenandoah or a ride to the top of Shenandoah Mountain. It is impossible to tell of the beauties of these trips, for it is hard to find a more lovely country than the Valley of Virginia. On returning, dress parade was witnessed at Staunton Military Academy. Later, the members and ladies were tendered a most excellent supper by this school, and the evening closed with a dance. The general meeting that evening was held at the Academy, also, at which time our invited guests, Drs. A. J. Ochsner and Daniel A. Orth, of Chicago, and John Osborn Polak, Brooklyn, presented their papers.

Dr. Hunter H. McGuire, Winchester, was elected president for the coming year. Names of other officers are given under Proceedings of Societies, in this issue. The Council is to decide upon the time and place of the next meeting. It is not too early to begin planning now to be on hand then. There is nothing that makes a member more interested in his State Society than attendance upon the annual meetings, and the co-operation of all members is needed for the success of our organization.

The Clinical Congress of the American College of Surgeons

Held its annual meeting in New York City, October 20-24, under the presidency of Dr. Charles H. Mayo, Rochester, Minn. Elaborate clinics were held at the various New York and Brooklyn hospitals in the mornings and afternoons, and the papers were read at evening sessions. The program included some European speakers of international reputation. Dr. Rudolph Matas, New Orleans, was elected president, and Dr. Franklin H. Martin, Chicago, was re-elected secretary-general. The time and place of the next meeting are to be determined upon and will be announced later.

The following Virginia physicians were elected to fellowship this year: Drs. John O. Boyd and Elbyrne Gill, Roanoke; E. T. Trice and Carrington Williams, Richmond; Bernard H. Kyle, Lynchburg; Louis A. McAlpine, Portsmouth; George W. Schenck, Norfolk, and A. M. Showalter, Cambria.

The above named with the following were among those noted in attendance: Drs. F. S. Johns, P. W. Howle, Karl S. Blackwell and E. T. Gatewood, Richmond; E. C. S. Taliaferro and Burnley Lankford, Norfolk, and A. P. Jones, Roanoke.

Pneumonic Plague,

Which has broken out in the Mexican quarter of Los Angeles, California, and taken a toll of twenty-six deaths in twenty-nine cases, is the most readily transmitted and most fatal form of bubonic plague and is readily conveyed by secretions of the mouth and nose. The U. S. government is taking active steps to prevent the spread of this plague and physicians and health authorities should co-operate, as the

means of travel these days makes it possible for disease to be broadcast so readily. There is no better time than the present for physicians generally to refer to the literature and refresh themselves on the signs and symptoms of this plague that they may be prepared to cope with unsuspecting cases.

Married.

Dr. David Brakenridge Stuart, Dublin, Va., and Miss Mary Jane Park, Richmond, October 13.

Dr. David T. Gochenour, Stuarts Draft, Va., and Mrs. Sue Kendig, October 22, in Washington, D. C.

Dr. Donald M. Faulkner, Richmond, and Miss Isabel Virden, of Cleveland Ohio, September 24.

Dr. William Herman Whitmore, Richmond, and Miss Lucille Virginia Hodges, Danville, Va., October 14.

Dr. Benjamin Elmer Glass, Plainfield, New Jersey, and Miss Libby Shirley Leo, Richmond, November 2. Dr. Glass was a member of the class of '23, Medical College of Virginia, at which time he received appointment as interne at Muhlenberg Hospital, Plainfield.

Dr. Peyton Stark Lewis, Richmond, and Miss Marie Shepherd, Charlottesville, Va., October 14.

Dr. Benjamin Edward Hunt, Jenkinjones, W. Va., and Miss Mary Louise Smith, Bluefield, W. Va., October 11. Dr. Hunt graduated last June from Medical College of Virginia.

To Erect Statue to Dr. Long in Georgia.

Contract has been let for the erection in Georgia of a statue to Dr. Crawford W. Long, discoverer of anesthesia. It is to be of marble and will cost about $9,000. It is expected that this will be completed in about a year.

Scholarships Available.

Scholarships on the Oliver-Rea Foundation for graduate study in Medicine are available at the New York Post-Graduate Medical School and Hospital.

Inquiries should be addressed to the Dean, 301 East Twentieth Street, New York City.

Memorial to Slain Physician.

Friends of the late Dr. Robert L. Powell, of Spotsylvania County, Va., have erected a monument to him near Granite Springs, Va., the place at which Dr. Powell was killed a few months ago. It was unveiled early this month.

Dr. and Mrs. R. W. Selby,

Middleburg, Va., recently visited friends and relatives in Northumberland County, Va.

Dr. and Mrs. Bernard H. Kyle,

Lynchburg, Va., have been spending some time in New York City.

Attend Kiwanis Meeting.

Among those attending the district convention of the Kiwanis Club in Norfolk, Va., recently, were Dr. J. M. Biedler, Harrisonburg, Va., and Dr. E. R. Rogers, of Covington.

Dr. W. W. Chaffin,

Pulaski, Va., is under treatment at Jefferson Hospital, Philadelphia.

Dr. Robert H. Courtney,

Richmond, was elected secretary of the Trinity College Alumni Association of this city, at its recent meeting.

History of Alumni, Medical College of Virginia.

The Executive Committee of the Alumni Association of the Medical College of Virginia has authorized the secretary to collect material for an Alumni History. Questionnaires have been prepared and will be mailed the alumni. These questionnaires are very complete and will not only give an idea of the achievements of various alumni but will also represent a service the Medical College of Virginia is rendering its graduates.

Dr. A. L. Wilson,

Lynchburg, Va., has been elected surgeon for the ensuing year to the Lynchburg Post, No. 16, American Legion.

Noted Success Attends New Hookworm Remedy.

Since the discovery about three years ago, by Dr. Maurice C. Hall, of the U. S. Department of Agriculture, of the usefulness of carbon tetrachloride, a cheap and common chemical, in the treatment of hookworm disease in domestic animals, members of the medical profession in various parts of the world have tried it on human patients with great success. A recent report by Science Service, based on the records of the Rockefeller Foundation, shows that about one and a half million persons have been treated, most of them in tropical or sub-tropical countries, but also many in the temperate zones.

A few hundred dollars and thirty dogs represent the costs of the investigations in the Bureau of Animal Industry which resulted in the discovery of the superiority of this Chemical in the treatment of this age-old parasite, yet, without considering the increase in human comfort and the saving of human lives, the return has probably been enormous. It has been used in many parts of this country where the parasite exists, but some of the most conspicuous successes have been reported by medical men in distant countries. Some of these reports tell of an increase of efficiency of industrial workers at a cost so low as to seem almost ridiculous.

Dr. David B. Lepper,

Recently of Lebanon, Va., has been made health officer of Isle of Wight County, Virginia, and has headquarters at Smithfield.

Dr. Bernhard Steinberg,

Who located in Boston after a service at Memorial Hospital, Richmond, has received a fellowship from the National Research Council and has been assigned to work at the Medical School of Western Reserve University and the Lakeside Hospital, Cleveland, Ohio. He entered upon his new duties on October 15.

The Society of Neurological Surgeons

Will meet at the clinic of Dr. C. C. Coleman, Richmond, Va., on December the 5th and 6th. Clinics and demonstrations will be held for the two days. Dr. Charles A. Elsberg, of Columbia University, New York City, is president of the Society, and Dr. Ernest Sachs, of Washington University, St. Louis, secretary.

Dr. Harry T. Schiefelbein,

Of New Lisbon, Wis., who graduated from the Medical College of Virginia in the class of '23, has located at Eckman, W. Va.

Automobile Fatalities in 1923.

According to the U. S. Department of Commerce, returns for 1923 show 14,412 deaths that year, resulting from accidents caused by automobiles and other motor vehicles (excluding motorcycles), within the death registration area of the United States, exclusive of Hawaii. The area reported represents 87.6 per cent of the total population of the United States, and gives a death ratio of 14.9 per 100,000 population as against 12.5 in 1922. Among the states, Virginia has the sixth lowest place, with a ratio of 8.3 per 100,000. The only Virginia cities listed in this report are Norfolk and Richmond, with a ratio of 8.2 and 14.4, respectively, per 100,000. No data is available to show how many of the deaths credited to any state or city occurred among the residents of that state or city or resulted from accidents which occurred in that state or city.

The Seaboard Medical Association of Virginia and North Carolina

Holds its next meeting at Rocky Mount, N. C., December 2, 3 and 4, 1924, under the presidency of Dr. William E. Warren, of Williamston, N. C. Dr. Clarence Porter Jones, Newport News, Va., is secretary. Dr. Louis B. Wilson, of the Mayo Clinic, will address a public meeting on cancer and will also speak before the scientific sessions. Senator Copeland, of New York, is expected to address another public meeting on the subject of child welfare. Clinics will be held early each morning in the three hospitals of the city. Entertainment features will be very elaborate.

Southern Medical Association.

Interest is now centering around the meeting of the Southern Medical Association in New Orleans, La., November 24-27. Dr. Charles L. Minor, Asheville, N. C., is president, and Mr. C. P. Loranz, Birmingham, Ala., secretary-manager. The railroads have arranged for reduced rates on the certificate plan and a large attendance is expected. The meeting will be held in a number of special sections and several affiliated organizations will hold meetings at the same time. Apart from the interest of New Orleans as one of the most attractive cities in this country, a number of social affairs will add to the pleasure of those attending. Take your fall vacation by attending this meeting of the Southern Medical Association.

Dr. Charles H. Moncure,

Orange, Va., left the middle of October for a visit to relatives in Asheville, N. C.

Dr. and Mrs. L. F. Hansbrough

Have returned to their home in Front Royal, Va., after a motor trip to Baltimore, Md.

Dr. A. L. Tynes,

Staunton, Va., has been spending some time at his old home in Tazewell, Va.

Mouth Hygiene and Health Exhibit.

From November 10 to December 5, inclusive,

the Allied Dental Council will have a Mouth Hygiene and Health Exhibit in New York City's Astor Library building. To that exhibit more than three thousand dentists—members of the council—will give their time and money to show the people of New York what's the matter with the mouth.

Dr. Everett S. Barr,

After spending some time at Highland Hospital, Asheville, N. C., has returned to his duties as Medical Director of the Philadelphia Hospital for Mental Diseases. This is the city hospital for mental diseases and has a population of over thirty-five hundred patients. The receiving service is located in the city at Thirty-fourth and Pine Streets. About twelve hundred patients are admitted annually and a hospital of thirteen hundred beds is maintained in the city. The suburban branch of the hospital is located at Byberry, at the edge of the city, but within city limits, where a farm of over a thousand acres is actively cultivated. Twenty-two hundred patients are cared for at Byberry now, but new buildings are being erected there which will care for a thousand more patients. Seven buildings are in course of construction there, costing two and a half million dollars. A new hospital for feeble-minded children has recently been built at Byberry and this hospital also is under Dr. Barr's direction.

Park View Hospital,

Rocky Mount, N. C., announces that Dr. W. Bernard Kinlaw was taken on the medical service of that hospital, as internist, October 1st, and will devote his attention especially to the chest and heart. Dr. Kinslaw was for the past year connected with the staff at the N. C. State Sanatorium for Tuberculosis.

Sheckelford Hospital Enlarged.

The Shackelford Hospital, Martinsville, Va., is making an addition of thirty rooms, which will be up-to-date in every respect. This addition is to be opened in December.

Dr. John W. Scott,

Gordonsville, Va., who has been sick for several months, is now somewhat improved.

Dr. E. M. Gayle

Has returned from Morganton, N. C., to Portsmouth, Va., where he has offices in Professional Building.

Radford General Hospital.

A new hospital is being built on Tyler Avenue, Radford, Va., across from the Normal College. The work is being pushed with the expectation of completion around January 1st. The building is to have four stories, with a capacity for thirty patients and six rooms on the top floor will be used for nurses' quarters. The hospital is being built by the Radford Hospital Building Corporation, composed of the citizens of Radford, with leading citizens forming the board of directors. The hospital is leased to Dr. T. C. Harris, formerly of Kenbridge, Va., and Dr. J. T. Shelburne, formerly of Montgomery County, who will install modern equipment in the building and conduct it as a private institution under the above name.

Dr. P. K. Graybill,

Fincastle, Va., is spending some time in Phoenix, Arizona.

Dr. William J. Crawford,

Of Winston-Salem, N. C., has been elected health officer of Davidson County, North Carolina. Dr. Crawford graduated from Medical College of Virginia in 1922.

Dr. George H. Simmons,

For more than twenty-five years general manager of the American Medical Association and editor of its Journal, now Editor and General Manager Emeritus of the Association, has left for an extended trip to Europe and India.

Dr. Homer B. Luttrell,

Formerly of Amissville, Va., has located at Bramwell, W. Va. Dr. Luttrell graduated from Medical College of Virginia in 1923, at which time he accepted an internship at St. Francis Hospital, Jersey City, N. J.

Dr. Edward Sandidge

Has returned to his home at Amherst, Va., after spending several days in Northumberland County, Va., on a fishing trip.

Dr. Leta J. White,

Who graduated from Medical College of Virginia in 1923, and served an internship at Memorial Hospital, Richmond, was recently appointed a temporary medical inspector in this city during the vaccination campaign against diphtheria.

Dr. O. O. Ashworth

Has returned to Richmond from a visit to New York City, where he was one of the speak-

ers before the annual convention of the Eastern Society of Anesthetists.

The Virginia Registered Pharmacists' Association,

At its annual session in Norfolk, in October, re-elected W. E. Snellings, of Norfolk, as president. It was voted to employ a full-time secretary to look after the interests of the Association.

The Richmond Chapter, Medical College of Virginia Alumni,

At its meeting held the latter part of October, elected the following officers for the ensuing year: President, Dr. Howard Urbach; vice-president, A. L. I. Winne; treasurer, Dr. Frank S. Johns; secretary, Dr. Harry Bear, all of Richmond.

Leprosy in the United States.

Although few people other than physicians ever see a case of leprosy, it is estimated that there are between five hundred and a thousand lepers in the United States. Recently three people have been discharged from the Carville, La., Leprosarium as having no manifestations of leprosy and being to all intents and purposes cured. While the treatment of the disease at the Leprosarium is by no means limited to the use of special preparations of chaulmoogra oil, their use is regarded as an important adjunct of the treatment.

Accommodations for lepers at Carville have never been sufficient to care for all lepers who apply, all of its 211 beds being filled, but there will soon be facilities to care for a total of 415 lepers and it is believed the new buildings will be filled rapidly as there is a long waiting list.

Dr. and Mrs. E. T. Ames,

Montross, Va., were recent visitors in Richmond, having come to attend the marriage of Mrs. Ames' sister.

Dr. A. S. Priddy,

Superintendent of the State Epileptic Colony near Lynchburg, Va., was a recent visitor in Bedford, Va.

Carbon Monoxide Poisoning in Small Garages.

The newspapers recently carried a news item of the death from carbon monoxide poisoning, of a prominent Baltimore man, who was found dead in his garage with the engine of his automobile still running. In view of this, the Surgeon General of the U. S. Public Health Service warns automobile owners of the danger involved in running a gasoline engine in a small closed space for any considerable period of time.

In tests of the exhaust of a small 23-horsepower automobile engine, it has been found that it discharged approximately 25 cubic feet of gas per minute, samples of which gave an average of six per cent carbon monoxide, or 1.5 cubic feet of deadly carbon monoxide gas per minute. Of course larger engines will give off more. Now a ratio of 15 parts carbon monoxide to 10,000 parts of air is considered a dangerous concentration to be exposed to for a considerable time; and the small 23-horsepower engine in "warming up" and giving off only one cubic foot of carbon monoxide per minute would contaminate the air of a small closed garage, 10 by 10 by 20 feet, to the danger point in about three minutes.

Carbon menoxide is a colorless, tasteless, and almost odorless gas. Its poisonous action depends on the fact that it has a much greater affinity for the hemoglobin of the blood than has oxygen—hemoglobin attracting carbon monoxide about 300 times as strongly as it does exygen. By combining with carbon monoxide, the hemoglobin of the red blood corpuscles is prevented from giving up its oxygen to the tissues. Death results from paralysis of the respiratory apparatus. The attack of carbon monoxide poisoning comes on insidiously, and consciousness is gradually lost. Even though the victim may become aware of the danger he is often unable to escape from it, because of the great loss of motor power.

The automobile worker in a small garage is most frequently the victim. It therefore behooves every person who runs his engine in a small garage to see to it that the room is properly ventilated by having the windows and doors opened if he expects to run the engine for even a few minutes.

General Hines Endorses Red Cross

In a conference with Red Cross officials last July, Brig. Gen. Frank T. Hines, Director of the Veterans Bureau, heartily praised the part that the American Red Cross is playing in helping the service man to secure adequate compensation. The Red Cross, said General Hines, was one of the most effective aids of the bureau.

Since the Armistice the Red Cross has spent $50,000,000 in aiding service and ex-service men

and women and their families. It is now assisting more than 100,000 each month. To 180,000 soldiers, sailors and marines now on active duty, it is giving the same help it gave during the war. And it has enrolled 41,000 nurses, who are at the call of the Government in emergency—war, disaster or epidemic.

In announcing its Eighth Roll Call, to be held November 11-27, the Red Cross affirms that its first obligation and duty is to the disabled. There are today more than 2,500 chapters carrying on soldier work in their own communities. All this work depends upon the degree to which the American people respond to the Roll Call. The dollar membership dues collected at that time are used to finance the various Red Cross activities, and if the response is weak, by just so much the work suffers. If you believe in this work, do your share by signing up this November.

Measures for Preventing Simple Goiter.

A recent issue of the *Virginia Health Bulletin* was devoted to "Simple Goiter," and told of its cause, prevalence and prevention. It was suggested that, as a preventive, sodium iodide might be mixed with common table salt (sodium chloride), which it much resembles in appearance and taste, and that this salt should be used regularly for cooking and table purposes in sections where goiter is more or less prevalent. The first iodine salt to be distributed through the grocery trade, in compliance with the request of health authorities, has space in our advertising pages. We suggest that you look up this advertisement and, as occasion demands, patronize this and other of our advertisers.

Our advertising is acceptable to the Council on Pharmacy and Chemistry of the American Medical Association, and we depend upon our readers to help our advertisers secure the returns they expect.

Doctors on Library Board.

Drs. Ramon D. Garcin and Beverley R. Tucker have been elected members of the board of directors th the Richmond (Va.) Public Library.

Dr. J. N. Barney,

Fredericksburg, Va., has been elected historian of the Bowen-Franklin-Knox Post, American Legion, of that city.

Dr. M. G. Robinson,

Wytheville, Va., was appointed deputy grand high priest for District 9, at the annual meeting of the Grand Chapter of Royal Arch Masons of Virginia, in Richmond, the latter part of October.

Dr. W. I. Robey,

Recently of Alexandria, Va., announces the removal of his office to 1539 Eye Street, Northwest, Washington, D. C.

Dr. and Mrs. W. E. Price,

Of Meredithville, Va., recently visited friends in Charles City County, Va.

Wanted Assistant Physician

For general practice in industrial section of West Virginia. Salary $150.00 per month. Must furnish references. Address No. 359, care this journal.—(Adv.)

Position Wanted

As doctor's assistant, by undergraduate nurse, with knowledge of stenography, bookkeeping and the simpler routine of laboratory work. Three years' experience as assistant to general practitioner. Splendid recommendations. Willing to start on small salary. Address No. 356, care this journal.—(Adv.)

Wanted

Interne for small hospital. Write qualifications, experience, and salary expected in first letter. Address Box 359, Martinsville, Va.

Obituary

Dr. Edgar Ackley Moore,

Of Marshall, Va., died suddenly at his home on the night of October 24. He was born in Clarke County, Virginia, forty-five years ago and studied medicine at the University College of Medicine, Richmond, from which he graduated in 1905. He had been a member of the Medical Society of Virginia since 1909. Dr. Moore saw service in the World War and was a Mason. His wife, a son, and a large family connection survive him.

Dr. Stephen W. Fielder

Died August 28, at his home in Fries, Va. Death was due to cerebral hemorrhage. Dr. Fielder was seventy-five years of age.

Dr. Robert Emmett Moore

Died at his home at Wytheville, Va., September 11, at the age of eighty-five. He had retired from practice some years ago. Dr. Moore graduated from Medical College of Virginia, Richmond, in 1861.

The Use of Gelatine in Diabetes

IN ALL DISEASES in which the cure centers upon the successful assimilation of a prescribed diet, Knox Sparkling Granulated Gelatine has been found an agent of inestimable value.

It has been shown by a long series of experiments with charted feedings that quite aside from its direct contribution of the natural amino acid, Lysine, Knox Sparkling Gelatine promotes the digestion of other foods combined with it by its protective colloidal ability.

It usually permits foods, otherwise disturbing, to be assimilated without effort and in the quantities desired.

Doctors are using this pure granulated gelatine freely in cases of Diabetes, Chronic Indigestion, and Mal-nutrition. Gelatine dissolved and added to milk in the proportion of one per cent (one level tablespoonful) to a quart increases the nutriment obtainable from the milk by twenty-three per cent.

◈ ◈ ◈

A number of special recipes for Diabetic Diets have been prepared by a recognized authority and will be mailed to doctors and hospitals upon request together with a scientific report on the Health Value of Gelatine.

In addition to the family size packages of "Plain Sparkling" and "Sparkling Acidulated" (which latter contains a special envelope of lemon flavoring), Knox Sparkling Gelatine is put up in 1 and 5 pound cartons for special hospital use.

KNOX
SPARKLING
GELATINE

"The Highest Quality for Health"

Charles B. Knox Gelatine Laboratories
441 Knox Avenue, Johnstown, N. Y.

Free from harmful acidity, artificial coloring, and synthetic flavoring.

Aquascutum Ltd. REGISTERED

AN ENGLISH GREAT COAT —Cravenetted.

¶IDEAL FOR PHYSICIANS.

Hanan Shoes

O. N. Berry Co. ESTABLISHED 1879 RICHMOND, VA.

Dunlap Hats

VIRGINIA TRUST COMPANY RICHMOND, VA THE SAFE EXECUTOR

Capital $1,000,000 Surplus Earned $1,000,000

ESTABLISHED 1892

To act as Executor, Guardian and Trustee
$25,000,000
of investments held in Trust

Confidential Interviews Invited.

DOCTORS administer to the sufferings of the living and bring them comfort.

THIS BANK administers to the estates of the dead and brings to them protection and economical administration.

Let us have your will prepared without cost to you.

MERCHANTS NATIONAL BANK
RICHMOND, VIRGINIA

Capital. Surplus and Undivided Profits over $2,400,000.00

"SAFEST FOR TRUSTS"

Virginia Medical Monthly

OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

Vol. 51, No. 9.
WHOLE No. 870.

RICHMOND, VA., DECEMBER, 1924

$2.00 A YEAR
20 CENTS A COPY

CONTENTS.

ORIGINAL COMMUNICATIONS:

The Surgical Treatment of Unilateral Pulmonary Tuberculosis. A. J. Ochsner, M. D., Chicago, Ill. ---- 529

A Clinical Consideration of the Various Types of Goiter. Linwood D. Keyser, M. D., Roanoke, Va. ---- 531

The Significance of the Spleen, in the Light of Embryological Evolutionary, and Experimental Data. H. E. Jordan, Ph. D., University, Va. ---- 537

Clinical Conception of Anemia. Douglas Vanderhoof, M. D., Richmond, Va. ---- 544

Pulmonary Tuberculosis in Children of School Age. Charles R. Grandy, M. D., Norfolk, Va. ---- 547

Carcinoma of the Penis. C. P. Howze, M. D., University, Va. ---- 550

Some Comments on Surgery of the Female Pelvis. A. M. Showalter, M. D., F. A. C. S., Christiansburg, Va. ---- 553

Ideas in Syphilology. T. Latane Driscoll, M. D., Richmond, Va. ---- 556

Syphilis—A Preventable Infection. Dudley C. Smith, B. S., M. D., University, Va. ---- 557

Neuro-Vascular Syphilis. Thomas W. Murrell, M. D., Richmond, Va. ---- 559

Radium Therapy in Uterine Hemorrhage. J. Morehead Emmett, M. D., Clifton Forge, Va. ---- 562

X-ray Examination of the Urinary Tract. Joseph T. McKinney, M. D., Roanoke, Va. ---- 566

Therapeusis by Intraperitoneal Injections in Infancy. Thomas E. Oast, M. D., Portsmouth, Va. ---- 570

Aneurism. Israel Brown, M. D., Norfolk, Va. ---- 573

The Outlet and Its Pelvimetry. Millard B. Savage, M. D., Norfolk, Va. ---- 575

CLINICAL REPORTS:

A Case of Typhoid Perforation with Recovery. Richard Mason, M. D., The Plains, Va. ---- 579

CORRESPONDENCE ---- 580

PROCEEDINGS OF SOCIETIES ---- 580

THE TRUTH ABOUT MEDICINE ---- 581

BOOK ANNOUNCEMENTS ---- 583

EDITORIAL ---- 584

NEWS NOTES ---- 587

OBITUARY ---- 594

INDEX OF ADVERTISERS—Advertising Page 5.
(For Society Announcements, see page 32).

CALCREOSE

CALCIUM AND TUBERCULOSIS

CALCIUM starvation has been suggested by phthisiologists as a factor in the etiology of pulmonary tuberculosis. By prescribing **CALCREOSE** some of the needed calcium may be supplied.

CALCREOSE (calcium creosotate) is a mixture containing in loose chemical combination approximately equal weights of creosote and lime. It has the pharmacologic activity of creosote as used in the adjuvant treatment of tuberculosis, but differs from creosote in that it apparently does not have any untoward effect on the stomach.

POWDER—TABLETS—SOLUTION

Samples of Tablets on Request

THE MALTBIE CHEMICAL COMPANY

Newark, New Jersey

A STANDARDIZED COD LIVER OIL
FOR THE CONTROL OF RICKETS

RECENT PEDIATRIC LITERATURE has demonstrated conclusively the value of Cod Liver Oil in the prevention and cure of rickets.

BUT SMALL AND UNIFORM DOSES can only be given when an oil of uniform high potency is available.

THE HIGH POTENCY OF MEAD'S CERTIFIED COD LIVER OIL is assured by careful supervision of every step in its preparation, and by making sure that only fresh cod livers are used from fish in the best physiological condition.

THE UNIFORMITY OF POTENCY is assured by biological tests of each batch of MEAD'S CERTIFIED COD LIVER OIL before marketing.

THE RESULT IS A STANDARDIZED ANTIRACHITIC AGENT which not only is unusually well tolerated by infants, but can also be given efficiently in such small doses as not to upset the fat proportion in the baby's diet.

Samples and literature sent at physician's request.

MEAD JOHNSON & COMPANY
Makers of Infant Diet Materials
EVANSVILLE, IND., U. S. A.

Virginia Medical Monthly

Official Organ of the Medical Society of Virginia

Vol. 51, No. 9.
WHOLE No. 870.

RICHMOND, VA., DECEMBER, 1924

20 CENTS A COPY
$2.00 A YEAR

Original Communications

THE SURGICAL TREATMENT OF UNILATERAL PULMONARY TUBERCULOSIS.*

By A. J. OCHSNER, M. D., Chicago, Illinois.

Among the large number of patients who die of pulmonary tuberculosis in this country, five-thousand or more per month, there are many whose disease was at one time limited to one side of the chest.

If the same principles of treatment are employed in these cases that we constantly apply in the treatment of tuberculosis of the spine and tuberculosis of joints, a considerable percentage of these patients can be permanently cured. Of course the same dietetic and hygienic methods must be employed which we make use of in the treatment of tuberculosis in general.

It has long been known that a condition of rest of the region involved in tuberculous infection is of the greatest possible importance in producing a cure of the disease. In tuberculosis of the spine, or of joints, we have long employed fixation, preferably with the use of plaster of paris casts.

In unilateral pulmonary tuberculosis a condition of rest has been established by compressing the diseased lung with nitrogen gas, which is repeated often enough to establish fairly uniform pressure.

In cases in which this can be done, surgical interference is not indicated, because the method of immobilization with nitrogen gas pressure is easily accomplished, is safe and gives excellent results, if employed by an experienced, careful physician. There are, however, cases in which this cannot be accomplished because of the presence of adhesions which make the introduction of a cannula into the pleural cavity impossible.

In these cases Jacobaeus, of Stockholm, has introduced a method of treatment which succeeds in a proportion of these cases in freeing these adhesions. He inserts a trochar between the ribs, and through this a thoracoscope, which really is a modified cystoscope, or endoscope, and with this in position he determines the character and location of the adhesions. He then inserts a second trochar and through this a fine electric cautery, with which he burns off slowly the various adhesions, keeping the wire at a dull red heat. After this has been accomplished the gas can be introduced in the same manner as in cases that have no adhesions.

Whenever the lung can not, however, be immobilized by means of gas compression in suitably selected cases, compression of the lung by surgical operation will be indicated.

The operation we have employed for this purpose was brought to this country first by Professor Friedrich, of Marburg, sixteen years ago, when he came over to read a paper as the guest of the American Surgical Society.

Our results at that time were not very satisfactory, because we had not learned how to select the cases, nor how to operate conservatively. In 1912, I visited the clinic of Professor Sauerbruch in the University of Zurich, Switzerland, where I saw a large number of suitable cases which had been operated by the method I am about to describe. In 1920, I again visited the same clinic, now in charge of Professor Clairmont, and found that many of the patients I had seen eight years before were still well and able to earn their living.

Professor Clairmont performed one of these operations in my presence to demonstrate his method and discussed his enormous experience in detail. Since my return I have followed his method carefully and my results have been exceedingly satisfactory. It is important, however, to bear in mind every detail quite as carefully in the selection of cases and in their preparation as in performing the operation.

Selection of Cases.—It is important that one lung be practically normal at the time of operation. If the better lung is already involved in the tuberculous process to quite a marked extent, then the operation is likely to shorten the patient's life.

*Read by invitation at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

The compression and consequent immobilization due to the operation is no better than that which can be accomplished with gas compression in cases free from pleuritic adhesions. Consequently no cases which can be treated satisfactorily by gas compression should be treated surgically. The condition present should be determined by a careful physical examination and confirmed by clear X-ray plates. The latter are also valuable later on in comparing results.

Having determined that the patient is suitable for treatment, he should be placed in bed and kept at absolute rest for at least a week in a room with windows wide open, or better still, on a sleeping porch, in order to accustom the patient to rest in bed. In the meantime much attention should be given to diet.

The operation should be performed under local anaesthesia combined with block anaesthesia, because the patients of this type do not bear general anaesthesia well.

Anaesthesia.—The patient is given a hypodermic of 1/4 grain of morphia and 1/150 grain of atropin an hour and a quarter before the operation is begun, and 1/6 grain of morphia and 1/200 grain of atropin one-half hour before. The morphia is given to reduce the sensitiveness and the atropin is to prevent the secretion of mucus in the pharynx, which will prevent coughing during the operation.

The intercostal nerves are then blocked with 1/2 per cent novocaine one-half hour after the second hypodermic at points three and six cm. from the spine, being careful to carry the needle up into the groove on the lower surface of the ribs and moving the point of the needle sufficiently to be sure to reach the nerve and to saturate the surrounding connective tissue.

The skin is then cocainized in the posterior axillary line for a distance of 4 cm. above and below the intended incision, extending in a vertical line parallel with the spine. We use up to 120 cc. of 1/2 per cent solution of novocaine, or its equivalent.

The position of the patient may be a horizontal one on the side opposite the diseased lung, or it may be banked up on the table in a semi-sitting position, but in the latter case the patient must be very well supported in order not to become exhausted.

Operation.—The following points must be kept in mind throughout the operation:

1. The anaesthesia must be perfect.

2. Unnecessary traumatism must be avoided.

3. Loss of blood must be limited to a minimum.

4. The time of operation must be limited to a minimum.

5. The operation must be made in several stages.

6. At no single operation should enough ribs be removed to transgress the limit of safety; never more than six at one sitting.

7. In case the patient is anemic, an intravenous transfusion of whole blood should be made by the Percy method preliminary to the operation.

The amount of shock to the patient is greatly reduced if the anaesthesia is complete, and this feature is further enhanced by the use of very sharp scalpels and very gentle handling of the tissues.

Assistants and surgeons should apply hemostatic forceps to every bleeding point the moment the incision is made. Most of these points will not require ligatures, as bleeding will not recur when the forceps are removed before the wound is sutured.

These patients do not bear long continued operations well, and if the operation is carefully planned, it is not necessary to consume much time. The most important point to be remembered is that one must not do too much at one sitting.

The operation may proceed so smoothly that after enough has been done at one sitting the surgeon may be tempted to remove one rib after another until quite unexpectedly the patient will collapse. One should never remove more than six ribs at any one sitting no matter how well a patient may seem to stand up under the operation.

Steps of Operation.—A vertical incision is made in the posterior axillary line from the seventh rib above to a point beyond the twelfth rib below. Then after careful hemostasis, as many ribs are exposed to the full extent of the proposed removal as one has planned to excise at the first sitting.

The muscles must be retracted carefully so that the ribs can be exposed to within 3 cm. from their spinal attachment. If more than 3 cm. of rib is left at the spinal end, the compression of the lung is likely to be unsatisfactory.

The length of rib to be removed depends

upon the amount of compression desired, varying from 5 cm. to 20 cm.

It is best to expose all the ribs one intends to remove at one sitting and to strip them of their periosteum before removing any of them, because they will support the chest and prevent coughing, and then when they have all been carefully exposed one can remove them quickly in succession, preferably with the bone cutting forceps, introduced by Professor Key, of Stockholm, or with any other convenient rib cutter.

When one or more ribs have been removed, the resulting irritation is likely to cause coughing. It is important to keep at hand a large mass of fluffed gauze which one can at once press into the space from which the ribs have been removed to prevent the bursting of the pleura. In case the pleura should be injured it is well to close the pleural wound with a handful of vaseline, which should always be kept in readiness for this emergency. A handful of fluffed gauze should be placed over the vaseline and held in place.

If one requests the patient to cease coughing, every effort he may make will fail, but if one asks him to cough more he will not be able to continue. Consequently the moment the patient begins to cough, he should be asked to repeat this with the result of having him stop almost at once, so that the steps of the operation may proceed. The ends of the ribs are carefully smoothed off and covered with muscle.

Then a split rubber tube is inserted to the upper end of the wound and fastened in place with a fine unchromicized catgut suture and permitted to extend out of the lower end of the wound for a distance of 5 cm. A suture is fastened to the lower end so that it can be withdrawn after two or three days without disturbing the wound. The muscles are then sutured with fine chromic catgut and over this the skin is sutured with fine eight-day unchromicized catgut.

A dressing is applied over the wound and held in place with broad rubber adhesive plaster strips extending entirely around the chest, so that the patient will have to breathe with the diaphragm of the good lung, while the diseased lung will be both compressed and immobilized by the circular adhesive bandage. This dressing can be left in place for two or three weeks. On the third or fourth day the tube is pulled out by means of the attached string without disturbing the dressing.

There is great danger of doing too much at any one sitting. It is much better to do the entire operation in three or four stages than to do too much at any one stage.

Usually the patient's condition progresses better if the head of the bed is elevated from ten to eighteen inches after the operation.

The patient may be given nourishment at regular intervals, almost immediately after conclusion of the operation.

By taking the precautions given above, and especially by being willing not to do too much, these patients bear the operation remarkably well.

To summarize, the following conclusions may be worthy of consideration:

1. This treatment is applicable to patients suffering from unilateral tuberculosis of the lung.

2. In cases in which pleural adhesions make compression of the lung with nitrogen gas impossible, this method is valuable.

3. It should be employed only in carefully selected cases.

4. The patient should be accustomed to confinement in bed before operation is performed.

5. Local anesthesia with 1/2 per cent novocaine, or its equivalent, should be employed.

6. Perfect hemostasis should be secured.

7. The operation should be performed in two or three stages.

8. The wound should be carefully compressed in case of coughing to prevent rupture of pleura.

9. The chest should be carefully strapped at conclusion of the operation, the straps completely encircling the chest.

10. There is great danger of doing too much at one sitting.

2106 *Sedgwick Street.*

A CLINICAL CONSIDERATION OF THE VARIOUS TYPES OF GOITER.*

By LINWOOD D. KEYSER, M. D., Roanoke, Va.

The late William S. Halsted felt that the extirpation of the thyroid gland for goiter typified better than any operation the supreme triumph of the surgeon's art. However this may be, it is certain that no problem in the field of medicine or surgery was propounded

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October, 14-17, 1924.

so long ago, has been attacked by so many illustrious men, and has cost so much thought and endeavor and so many lives before its management along rational lines was achieved. During the past few years the incidence of goiter in Virginia has attracted the attention of both the professional and lay observer and it may not be untimely to review in a brief way the various types of the disease and the present-day views held with regard to the therapy of each.

The history of the development of our knowledge of goiter is voluminous and at the same time very tangled. Had we time to tell the story, the names of Parry, Graves, Basedow, Schiff, Murray, Horsley, Coindet, Baumann, Kocher, Halsted, Crile and Mayo would stand out prominently in clinical, biochemical and surgical advances that were made. The isolation of thyroxin by Kendall, in 1914; the introduction of clinical calorimetry by Benedict, Tissot and Du Bois, and its application to thyroid diseases, especially by Boothby and Plummer; the study and classification of thousands of cases by many observers; the work of McCarrison and of Marine and his coworkers in prophylaxis of the endemic types, have all led during the past ten years to a clearer conception of the disease, and old theories and classifications of types have suffered new interpretation in biochemical light.

At the present time, perhaps the most generally accepted classification of diseases of the thyroid gland is that of Plummer. This has gained world-wide recognition, because it best correlates the functional, structural, etiologic and clinical characteristics of the disease.

According to this observer we may group the types of thyroid disease as follows:

1. Diffuse colloid goiter.
2. Adenomatous goiter without hyperthyroidism.
3. Adenomatous goiter with hyperthyroidism.
4. Exophthalmic goiter.
5. Myxedema.
6. Cretinism.
7. Childhood myxedema.
8. Thyroiditis.
9. Malignant disease of the thyroid.

It is with the first four types that I wish especially to deal, not that the others are unimportant, but because the first mentioned types are more commonly met with in everyday practice.

A few words may be said of the physiology of the thyroid gland and its aberrations in form and function in each of these states. The normal thyroid gland weighs 45 gm. It consists of many acini lined with low columnar epithelium, separated by a sparse stroma. In many places, especially at birth, the acini are without a cavity and the lining cells are not completely differentiated. The term fetal acinus is applied to such types. As the acinus becomes developed it is filled with pink staining colloid.

The production of thyroxin is the function of the gland. This appears to act chemically as a catalyst hastening the rate of chemical changes in the body, or, as Plummer has expressed it, "the rate of formation of a quantum of potential energy available for transformation on excitation of the cell." The action of thyroxin is thus closely related to the heat producing forces of the body. Basal metabolism, meaning the mathematical expression in calories per square meter per hour of the basal heat production of an individual under standard conditions, is found to vary within wide limits in the various thyroid dysfunctions, and experimental evidence goes to show that it is the abnormality in quantity and probably in quality of thyroxin secreted that is instrumental in bringing about this variation.

The normal basal metabolism is not fixed, but a variation of from minus 10% to plus 10% may be considered normal, while a variation from plus 10% to plus 120% and from minus 10% to minus 40% is distinctly pathologic, if the reading be found consistent on repetition.

The thyroxin content of the tissues (exclusive of the thyroid gland), averages 14 mg. Between 0.75 mg. and 1 mg. is exhausted daily. A shift of 1 mg. thyroxin in the tissues is accompanied by a rise or fall of 2 to 3% in the basal metabolism. Plummer holds that the drop of thyroxin in the tissues is the stimulus that causes the thyroid gland to secrete thyroxin. The basal metabolism of a thyroidless individual is from 30% to 40% below normal. The edema of myxedema becomes recognizable when the basal metabolism drops from 15% to 17% below the average normal. The rate of exhaustion of thyroxin in the tissues varies with the activity and stress of the patient, or

in other words, with his total metabolism. It is the consensus of opinion that hyperthyroidism, or excessive secretion of the thyroid gland, finds almost a mathematical index in the relative elevation of the basal metabolic rate.

Diffuse Colloid Goiter.

This is a diffuse, symmetrical enlargement of the thyroid gland, pathologically associated with the deposit of an excess of colloid in the acini and clinically unassociated with the symptoms of hyperthyroidism.

Colloid goiter is an endemic disease. In our country it occurs in the northern part of the area extending from the Appalachian range to the Rocky Mountains, reaching its greatest incidence in the Great Lakes basin. From the etiologic standpoint, McCarrison has shown that the disease in the Himalayas is probably related to the water supply. The experiments of Marine and Luckhart in fish hatcheries would indicate a bacterial etiology, and McCarrison supports this view. Bacteria are supposed to interfere with the proper assimilation of iodine, and thus it is held to be a deficiency disease due to lack of available iodine for systemic assimilation.

An abnormal increase in the amount of colloid is constant, this being held to be an inactive waste or by-product of the gland put forth in an effort to maintain the normal amount of thyroxin in the face of an insufficient amount of iodine. The blood supply of the gland is abnormally increased.

Colloid goiter occurs most frequently in young girls near puberty, less frequently between twenty and twenty-five years of age. Enlargement is aggravated by the menses and by pregnancy. Symptomatically there is diffuse enlargement of the thyroid gland; bruit and thrills are frequently found, but none of the general or constitutional symptoms of hyperthyroidism are found. The basal metabolic rate is within normal limits, although occasionally the rate may be as low as minus 15% to minus 17%, with dry skin and other symptoms suggestive of a mildly hypothyroid state. Complaint of slight nervousness, fullness in the neck, and globus sensations are common, but actual pressure symptoms are rare.

In the prophylaxis and treatment of colloid goiter iodine holds first place. Coindet nearly a century ago introduced this form of therapy. Marine and his co-workers showed that iodine, fed in small doses over a period of two weeks until 2 gm. were given, prevented the development of goiter in a group of school girls in Akron, whereas the incidence in a control group was high. The use of iodine internally in treatment, however, is slow, and at times uncertain, in its results. Dried thyroid extract in doses of 1 grain or more daily, depending upon the tolerance of the individual, seems to supply the missing secretion in a better way and will frequently cause recession of the gland when iodine fails. The use of thyroxin by mouth or by intravenous injection will usually cause a rapid decrease in the size of the gland. In using the thyroid preparations, and especially thyroxin, careful check on the patient's symptoms and frequent basal metabolic readings are essential. The pulse should not be elevated over 100 per minute and the basal metabolism should not be raised over 10%. Thus this form of treatment requires careful, almost daily, observation and should be reserved for the specialist in this line of work. The use of table salt containing small amounts of sodium iodide, has recently come into vogue and is of great value in many cases. However, its greatest field of usefulness will probably be found in preventing the incidence of colloid goiter and of adenoma in coming generations.

Adenomatous Goiter Without Hyperthyroidism.

This is an adenomatous enlargement of the thyroid which is causing no toxic symptoms. Nodules from microsopic size to huge spherical tumors present themselves on palpation. The largest goiters are found in the group, and it also includes most of those that grow around the trachea, or substernally.

The incidence of the disease seems to follow closely that of colloid goiter as regards both age, sex, and geography. Prophylaxis is successfully met by the administration of iodine. Pathologically, fetal or adult adenomas may occur. A capsule is usually present, but in a certain small group with many small adenomas we find no capsule, a condition to which Wilson has applied the term "adenomatosis." Areas of hypertrophy resembling that noted in exophthalmic goiter have been described, but the clinical features are entirely dissimilar.

Symptomatically, nodular swellings, unsymmetrical and most frequently multiple, are determinable. As in colloid goiter, pregnancy

and gravidity may accentuate growth. Vascularity to the point of thrills and bruit is not the rule. Pressure on the trachea, or the recurrent laryngeal nerves, is frequent. There may be interference with the vocal cords, at times with no alteration of the voice. Hence the value of routine laryngoscopy. Constitutionally a tendency to hypertension has been noted in individuals of the group. The heart is not affected except from respiratory obstruction. The basal metabolic rate is normal, or slightly decreased, as in colloid goiter.

Colloid goiter may occur with adenomas, sometimes concealing the latter, which appear only as the colloid is absorbed under medical treatment.

The prophylactic administration of iodine will probably prevent the development of adenomatous goiter, but its use in therapy was shown by Kocher to be contraindicated, as iodine given to patients with non-toxic adenomas not infrequently leads to hyperthyroidism of the toxic adenomatous type. Kocher called the hyperthyroidism induced by such treatment "Jod-Basedow." Thyroid extract or thyroxin are held by most observers not to possess this danger and they will cause regression of the size of the gland in a certain number of cases. The most rapid effect is obtained by administering thyroid extract or thyroxin, repeatedly checking the basal metabolic rate so that this is maintained for a time about ten per cent above normal. This will soften up the adenomas but seldom brings about complete disappearance, especially after twenty-five or thirty years of age.

Surgical extirpation is indicated when the goiter becomes unsightly or causes local symptoms of pressure. The tendency of this type of goiter to become toxic in perhaps 25 to 30% of the cases as age advances makes surgery more advisable the older the patient. Any patient with adenoma, over 30 years of age, should be cautioned as to the gravity of the situation and its possibilities, and should have careful examination several times a year as to the question of beginning toxicity.

Adenomatous Goiter with Hyperthyroidism.

This is a constitutional disease in which adenomatous tissue, by secreting and maintaining an abnormally high and unregulated amount of thyroxin in the body, causes an increased basal metabolic rate with resulting secondary manifestations. The terms toxic adenoma and hyperfunctioning adenoma are synonymous, while the less accurate terms, exophthalmic goiter without exophthalmos, Basedowized goiter, incomplete exophthalmic goiter, formes frustes, etc., were loosely used to describe the condition before Plummer recognized it as an entity. The term goiter heart, or Kropfherz, also was used in describing the cardiac weakness and tachycardia seen in the disease. This cardiac effect was attributed to pressure on the vagi and sympathetics, an impression we know to be erroneous.

About one-fourth of all adenomas operated on show hyperthyroidism, and the incidence of toxic adenoma is high where adenomas are frequent. This is not uniform, however. For instance, McCarrison says that toxicity in adenomas in the goitrous districts of India is rare. Functionally, all the evidence at hand shows that the toxic adenomatous goiter secretes an excess of thyroxin; this elevates the metabolic rate, affects the heart and other organs and produces the symptom complex.

Pathologically, MacCarty has shown that areas of hypertrophy are more frequent than in non-toxic adenomas. Wilson holds that the colloid of toxic adenoma stains less densely than the colloid of the vesicle in the non-toxic type. Hyperplasia of the thymus occurs in less than one-half of the toxic adenomas coming to autopsy.

Toxic adenoma is rare under 30 years of age; 78% are over 40 years of age and one-half over 50 years, while the average age of the patient coming under observation is 48 years.

Symptomatically the patient has noted goiter at the age of 15 to 20 years, this usually of the non-toxic type. About 16 years later, on an average, the patient begins to complain of increase in nervousness, coming on insidiously, over a period of two or three years. Fatigue, loss of weight, increase in appetite, perspiration, a pounding tachycardia and palpitation, with mental instability, are accompanying features which gradually and unceasingly increase in severity. Often there is an exacerbation associated with an increase in the size of the gland. There are no remissions; exophthalmos is absent, as also are gastrointestinal crises, and jaundice, which are met with in the exophthalmic type.

An unsymmetrical nodular thyroid enlarge-

ment, with bruits and thrills in less than 4% of the cases, is found. Small adenomas are prone to develop the disease, and the condition of adenomatosis may give rise to toxic symptoms of the type, with the gland apparently symmetrical on palpation. The basal metabolic rate is gradually elevated, running from 15% to 20% in the early stages and becoming much higher in protracted cases. The blood pressure is elevated in both limbs and the pulse pressure is increased. If the diastolic pressure is not elevated, it will be found that the systolic and pulse pressures mount with the metabolic rate. The volume output of the heart is increased; tachycardia, with an ever-increasing pounding beat, and gradual cardiac dilatation are noted. After a time premature contractions, later followed by auricular fibrillation with pulse deficit, come to attention. Palpitation, dyspnoea, and finally myocardial decompensation, add themselves to the distressing picture.

The clinical management of the condition will be considered after a discussion of exophthalmic goiter as the two types are both surgical, yet require careful distinction in management.

Exophthalmic Goiter.

This is a constitutional disease, apparently due to excessive secretion of an abnormal hormone by an enlarged thyroid, showing pathologically a diffuse, parenchymatous hypertrophy and hyperplasia.

No exact figures as to distribution are available. It does not parallel the regional distribution of colloid or adenomatous goiter, occurs in mountain or sea districts, and seems unrelated to the iodine content of soil, water, or food.

Etiologically, the work of Cannon, Wilson, and of Eppinger and Hess would suggest that the disease is due to repeated stimulation of the sympathetic nervous system, possibly of the superior cervical ganglia. Functionally, there seems to be an excessive secretion of a catalytic agent which differs in some way from the normal thyroxin. The hyperthyroidism produced by repeated intravenous injections of thyroxin simulates that of toxic adenoma, but in no way approaches the condition found in exophthalmic goiter. Kendall suggests that the thyroxin molecule in exophthalmic goiter may be so altered that an abnormal but related compound may be formed and excreted with the exophthalmic goiter syndrome as a consequence.

Pathologically there is a symmetrically enlarged gland varying from a scarcely noticeable, or unnoticeable, enlargement, to one 3 in. by 4 in. in size. Diffuse parenchymatous hypertrophy and hyperplasia are noted in 99% of the cases. Imbedded adenomas are found in about one-third of the cases. Two-thirds of the patients coming to autopsy have enlarged thymus, with lymphoid hyperplasia. Changes in the sympathetic ganglia have been noted by Greenfield and Wilson. Concurrent adenomas of larger size may give the gland an unsymmetrical appearance. The vascularity of the gland is markedly increased.

The age incidence of exophthalmic goiter is highest between 20 and 40 years, the average age being about 37 years, when coming to operation. Females are affected nearly five times as frequently as males.

Symptomatically, the disease has a rather sudden onset. We recognize remittent types with a more gradual onset of nervousness and tachycardia, scarcely recognizable to the patient. Some psychic shock abruptly brings on a crisis, with extreme intensification of all symptoms. Loss of weight and strength, palpitation, gastrointestinal crises with nausea, vomiting, and diarrhea, with jaundice at times as an ominous sign of hepatic degeneration, from which there is little hope of recovery, all with extreme nervousness of a peculiar type, are characteristic symptoms which become prominent during the crisis. The patients are confident of their ability to withstand stress and go to the point of exhaustion, a great point in differentiation from neurasthenia. Continuously on the move, making semi-purposeful actions, irritated on resistance, bursting into tears, with quick restitution of composure, we have a rather unusual psychic picture, but one altogether rather optimistic. A stage of depression is a rather bad omen. If the patient survives this crisis he will have a period of partial or complete remission for several months, to be followed again and again by hyperthyroid waves or crises of varying intensity. Waves of hyperthyroidism usually take place over intervals of about three months.

We may recognize also a chronic form of the disease which has an even and milder course, uninterrupted by waves of exacerbation. The

disease may begin as the remittent form, to continue as the chronic.

The clinical findings show that the sympathetic nervous system suffers the brunt of the attack in contradistinction to toxic adenoma where the cardiovascular system is chiefly affected. The basal metabolic rate is increased, running from plus 10% to plus 100% above normal. The basal metabolic rate tends to parallel the clinical features of the disease, falling in remissions to a variable degree. However, the basal metabolism only expresses the rate of body catabolism and does not take into account the factors of anabolism. If the increased heat output is maintained largely from the exogenous source of food intake, a high metabolic rate will not be of as serious import as a lower rate, which is being maintained from endogenous sources, such as the destruction of body cells.

Exophthalmos is present to a greater or less degree in most of the cases, but is absent often enough to say that it is not a *sine qua non* for diagnosis. The eye signs of Graefe, Moebius, Stelwag and Rosenbach are well known and frequently occur, but are of little real diagnostic import.

Increased vascularity of the enlarged gland is common and about 70% of the cases present thrills and bruits, especially over the enlarged and tortuous superior thyroid vessels. The heart is enlarged, imparting a heavy impact on palpation, and tachycardia follows closely the basal metabolic rate elevation. Murmurs are frequent, and especially a systolic murmur over the pulmonary area, a condition which is also noted with toxic adenoma. Decompensation, edema and ascites are not uncommon. Auricular fibrillation is a later finding, occurring in abont one-fifth of the cases. It usually occurs intermittently, but when chronic, it decreases life expectancy. Flutter is rare, but an ominous sign, and digitalis should be pushed to the point of vomiting or even heart block before operating under such circumstances. In this way either fibrillation or normal sinus rhythm may be obtained.

The blood pressure shows a decreased or normal diastolic pressure, with a normal or slightly increased systolic pressure. If the diastolic limb is elevated the systolic will be increased also. Hypertension is rare in contradistinction to toxic adenoma, where it is a frequent finding.

The nervous system shows a fine rapid tremor of the tongue and extremities, weakness of the quadriceps, profuse perspiration and moist hot skin. The quadriceps weakness is of real diagnostic import.

Erythema of the elbows and arms frequently precedes a gastrointestinal crisis. Urticaria and distinct pigmentation of the skin also occur.

Fever is uncommon except as a part of the terminal picture, or due to intercurrent infection.

The body weight is rapidly lost and may be taken as a rough index of the severity of the disease.

The blood picture shows a relative and absolute mononucleosis, leucopenia taking place at the expense of the neutrophiles. The blood chemistry and nitrogen partition reveals little diagnostic import. Nephritis and diabetes are occasional complications, but a transient glycosuria may be present in about 2% of the cases.

Toxic adenoma and exophthalmic goiter may superimpose their symptoms to a variable degree in the same patient and lead to a great variety of clinical pictures, which are often difficult of differentiation.

The Treatment of Toxic Goiter.

This is a phase of medical and surgical specialization and can only be touched upon. Surgical extirpation of a large part of the gland is the most common measure and gives great success in the majority of cases. The mortality of operation has been reduced by Crile and the Mayo Clinic surgeons until it is now around 1%. X-ray therapy and radium find advocates in the treatment of exophthalmic goiter, both pre-operatively and as the sole therapeutic agent. The reports of Means and Holmes and their co-workers at the Massachusetts General Hospital are full of interest and offer much hope for the future. Prolonged rest has been shown to be efficacious and has been championed by Kessel, Lieb, and Hyman, of the Mt. Sinai Hospital. On the whole, surgery still finds favor. It is the opinion of most radiologists that toxic adenomas are little benefited by radium or X-ray.

Rest, quiet, forcing of fluids, high carbohydrate intake, with low protein diet, local anesthesia, digitalis, ice packs, and other hygienic measures are involved in pre-operative and

post-operative management of both forms of toxic goiter. Preliminary ligation of one or both superior thyroid vessels in severe cases of the exophthalmic type has long been practiced with benefit. It is of no value in the toxic adenomatous types.

During the past year and a half the introduction of the administration of Lugol's solution in doses of five to ten drops from one to three times daily, has been shown to be of tremendous benefit by Plummer and his co-workers in reducing temporarily, at least, the toxic symptoms of exophthalmic goiter. After a few days the symptoms of nausea, vomiting, diarrhea, cardiac decompensation, with the basal metabolic rate, all subside in the majority of cases. The indications for ligation are less frequent, and the immediate mortality from hyperthyroidism is brought near zero.

Iodine is not used in the toxic adenomatous cases, but may be tried when, in addition, the symptoms of exophthalmic goiter are superimposed. The use of iodine in exophthalmic goiter has not gone unchallenged, but in the light of reports from the Mayo Clinic it would seem that this form of treatment is a real advance and that its application will soon become general.

The last word in our conception and management of goiter has yet to be spoken, as is evidenced by the numerous articles appearing each month with conflicting statements. I trust that this resume of the features of colloid goiter, adenomatous goiter without hyperthyroidism, adenomatous goiter with hyperthyroidism, and of exophthalmic goiter, which has been presented chiefly from the point of view of the practitioner, may be considered as not without some small value at at time when our interest in the study and control of the disease in our own state is being aroused.

Bibliography.

1. Boothby, W. M., Plummer, H. S., and Wilson, Louis B.: Diseases of the Parathyroid and Thyroid Glands. Oxford Med., Vol. III, Chap. XV, pp. 831-963.
2. Boothby, W. M. and Sandiford, I.: Laboratory Manual of the Technic of Basal Metabolic Rate Determinations. Phila. Saunders, 1920, 117 pp.
3. Crotti, A.: Thyroid and Thymus. Phila. Lea and Febiger, 1918.
4. Crile, G. W., and Associates: The Thyroid Gland, 1922.
5. Halsted, W. S.: The Operative Story of Goiter. Johns Hopkins Press. Balto. (Privately printed).
6. Kendall, E. C., and Associates: Series of Papers on Isolation and Identification of Thyroxin. Collected Papers of the Mayo Clinic. 1915-1923. Saunders, Phila.
7. Means, J. H., and Holmes, G. W.: Archives of Int. Med. March, 1923.
8. New, G. B.: The Larynx in Diseases of the Thyroid. Annals of Clin. Med. Vol. I, No. IV, Jan., 1923.
9. Plummer, H. S.: Interrelationship of Function of the Thyroid Gland and of Its Active Agent Thyroxin in the Tissues of the Body. Jour. A. M. A., Vol. 77, pp. 243-247, July 23, 1921.
10. Plummer, H. S.: Jour. A. M. A., June 30, 1923.
11. Plummer, H. S., and Boothby, W. M.: The Value of Iodine Administration in Exophthalmic Goiter. Jour. Iowa State Medical Society, 1924, Vol. XIV, pp. 66-73.
12. Sistrunk, W. E.: Indications for the Surgical Treatment of the Different Types of Goiter. Surgery, Gynecology and Obstetrics, Oct., 1921, pp. 348-352.

417 *Anchor Building.*

THE SIGNIFICANCE OF THE SPLEEN, IN THE LIGHT OF EMBRYOLOGICAL, EVOLUTIONARY, AND EXPERIMENTAL DATA.*

By H. E. JORDAN, Ph. D., University, Va.
School of Histology and Embryology, Department of Medicine, University of Virginia.

A recent volume on the "Surgery of the Spleen," by Pool and Stillman begins with the following sentence: "Of all the structures in the body, the spleen pre-eminently deserves the name of organ of mystery." In the second paragraph of the Introduction appears the statement: "The spleen alone is a dispensable organ." Subsequently in the text appear these words: "The pathology of the spleen is obscure in many respects"; "the surgery of the spleen is still largely empirical, based chiefly upon hypothesis and the observations of patients after operation"; "the microscopic anatomy of the spleen, while apparently relatively simple, is not fully understood"; "in spite of extensive investigations, little is actually known about the function of the spleen"; "the results of experiments are meagre."

The foregoing statements are abundantly supported through 327 pages. They are, moreover, typical of the general statements regarding the spleen in similar works. The fact remains that the spleen continues to be very much of an enigma. We would seem to have progressed in specific knowledge of the spleen not very far beyond the point where Galen left the matter almost two thousand years ago with the statement that "the spleen is an organ of great mystery." This is not meant to minimize or disparage either the quality or the

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

value of the great volume of investigations on the spleen. It emphasizes rather the unusual difficulty of the subject.

The fact of this paucity of definite knowledge regarding the function of the spleen has moved me to attempt to effect an advance, however slight, by approaching the question of the significance of the spleen coincidently from three different directions, namely, from the direction of its embryology, its racial history, and the effect of its extirpation in lower forms like the frog. These three combined modes of attack have led to a consistent interpretation which serves at least as a sound basis for further more detailed investigation, more especially as regards spleen pathology.

We may most profitably examine first the embryological evidence. What can we learn regarding the probable function of the spleen from an examination of its development in the mammalian embryo? In a pig embryo of about 10 mm. length, corresponding roughly to a human embryo of about 40 days, the primordium of the spleen becomes discernible as a slight swelling on the left border of the dorsal mesogastrium. This swelling results from a proliferation of certain mesenchymal cells which round up and assume the appearance of large lymphocytes. As the differentiation and proliferation of these primitive lymphocytes continue, the swelling gradually enlarges, and the definitive spleen begins to project into the celom, maintaining connection with the mesogastrium through the gastro-splenic ligament. Increase in size results secondarily also in part from the migration of lymphocytes from out of the mesentery into the spleen primordium. Meanwhile the spleen primordium has become extensively vascularized by the penetration of branches from the mesenteric artery which, breaking up into an extensive capillary net, communicate with the branches of the splenic vein. According to Thiel and Downey ('21) already in pig embryos of 6 to 7 cm. (corresponding to a human embryo of about 90 days) there occurs communication between the vascular capillary network and the primitive splenic sinuses, and the open sinusoidal circulation characteristic of the adult spleen is established.

Beginning with a stage of about 30 mm. in the pig, the blood-forming activity of the spleen becomes discernible. The process is initiated by the separation from the mesenchyme of large round cells with basophilic cytoplasm, resembling large lymphocytes. By the 40 to 60 mm. stage of development these primitive blood cells, or hemoblasts, become distinguishable as erythroblasts by their content of hemoglobin. These hemoblasts occur generally as small groups of cells, for the most part located extravascularly, that is, outside of the fenestrated sinuses, though frequently on their margins. Only subsequently do the granulocytes appear. After the earlier stages the predominating type of lymphocyte is of the small variety. These may enlarge to become lymphocytes of the large variety.

The embryology of the spleen reveals, then, that its essential function is originally erythrocytopoietic; that the red cells develop from lymphocyte-like cells derived from the mesenchyme, and that red cell formation is associated with an open system of sinusoidal blood-vessels. The blood-forming function of the spleen, however, is transient. Prior to the 5 mm. stage (about 30 days), blood is formed in similar manner from the mesenchyme of the yolk sac, body wall, liver and kidney, and possibly in small part also from the endothelium of the liver capillaries. Subsequently to the fifth month of human development, the spleen gradually loses its blood-forming function, the process being surrendered to the red bone marrow, until at birth the spleen is practically a mass of lymphoid tissue in which lymphocytopoiesis and the later stages in the process of the elimination of senile red cells predominate. In short, the post-natal spleen is essentially an embryonic remnant, notwithstanding its relatively large size. Moreover, since red bone-marrow occurs already toward the end of the second month, splenic hemopoiesis is apparently never functionally important in mammals. This fact suggests that the spleen is interpretable fundamentally rather as an evolutionary than an embryonic remnant.

The racial history of the spleen tells the same story. And it is interesting to note in the case of this organ the beautiful demonstration of the so-called law of recapitulation, namely, the statement that the embryo or any of its organs recapitulates in development the stages through which the race progressed during its evolution.

Beginning with the lowest vertebrate, the lancelet (amphioxus), we note that a spleen is not yet present. Moreover, this form contains

no red blood cells. Its colorless blood cells are derived from hemoblasts differentiated from body mesenchyme. Passing to the round-mouthed fishes, e. g., the lamprey, what may be called a diffuse spleen appears throughout the wall of the entire mid gut. This form has both red and white blood cells. Beginning with the true fishes, a sharply marked spleen occurs attached to the mesentery, consisting of an extensively vascularized mass of segregated lymphocytes, very active in red cell formation. In the lung fishes, however, the spleen is still in the stomach wall (Wiedersheim). Lung fishes represent the transition stage between a diffuse spleen and a sharply segregated spleen, and resemble the ontogenetic stage where the spleen primarily appears in the dorsal mesogastrium.

When we come next to the amphibia, e. g. frog, a new stage appears. Here the spleen is practically the sole organ of blood formation for the greater part of the year. However, for a very brief period immediately after hibernation, red marrow appears in the long bones, very active in red cell formation, the spleen at this time being little more than a mass of reticular tissue almost free of lymphocytes. Amphibians, moreover, lack lymph nodes and nodules, except for very small and variable diffuse masses of lymphocytes in the pharynx, axillae and groins. These foreshadow the lymph nodes of higher forms.

Beginning with certain reptiles, more definitely indicated in birds and mammals, the spleen has practically lost its capacity for red cell formation, and the marrow now becomes essentially the sole organ of hemopoiesis. Beginning with reptiles also, characteristic lymph nodes occur.

The racial history of the spleen thus reveals the following facts: That the spleen represents a segregation of intestinal and mesenteric lymphocytes in the region of the stomach; that these lymphocytes function as hemoblasts in the differentiation of red blood cells; that up to and including amphibia, the spleen represents a combination of both lymphoid and myeloid tissues, with a corresponding dual function; that beginning with reptiles this dual structure and function is surrendered to, and divided between, lymph nodes and red marrow; and finally, that the spleen itself persists in mammals as a phylogenetic remnant without essential function. Evolutionary data confirm the embryological evidence as indicating a primarily erythrocytopoietic function for the spleen.

A few exceptions and variations must be noted, and certain details added. In fishes generally, the kidney (mesonephros) which is here characterized by an extensive sinusoidal circulation connected with a renal portal system, assists greatly in the function of blood formation. Indeed it would seem that the primitive kidney of many of these forms is the chief seat of blood formation. This is true also of the fish-like larval form of amphibia, e. g., the tadpole stage of the frog. The hemopoietic capacity of the mesonephros is gradually surrendered both in ontogeny and phylogeny to the spleen. Another striking variation in hemopoiesis relates to certain elasmobranchii (e. g., sharks and skates), and to salamanders. In the case of the skate the granulocytes are formed almost exclusively in the capsule and connective tissue septa of the testes and ovaries, red cells only in the spleen; in the case of the salamander, the granular leucocytes are formed chiefly on the border of the liver; the red cells only in the spleen.

The close relationship between red cell formation and abundant sinusoidal blood supply must be emphasized. The essential fact in this condition inheres most probably in laggard movement of the blood and the relatively high content of CO_2. This is illustrated in yolk-sac wall, liver, primitive kidney (mesonephros) spleen and bone marrow. Granular leucocyte formation seems related rather to conditions of meagre vascularity as in the periphery of the liver of the salamander, and the capsule of the testes and ovaries of shark and skate.

We may pass next to the experimental data. Malpighi (1686) was the first to claim an internal secretion for the spleen. A large body of experiments deals with efforts to demonstrate a splenic hormone. Downs and Eddy ('20) administered protein-free extracts of the spleen to various laboratory animals. They observed a transient decrease of red cells (lasting two to three hours), in the peripheral blood followed by a definite and more persistent increase, not only in the whole number of red cells, but also in the proportion of reticulated (young) erythrocytes. The feeding of the spleen substance or splenic extracts, when attempted as a therapeutic measure, has yielded no uniform or striking effect. Pool and Stillman state that the results claimed by Har-

rower ('16) and Carpenter ('00), for such procedure, need confirmation before they may be accepted.

More recently Leake and Evans ('23) also claim a hormone function for the spleen, stimulating hemopoietic activity in erythrocytogenic centers. The following quotation gives the method and results:

"Intravenous injections into rabbits on three consecutive days of 1 c.c. per kilogram of a 5 per cent filtered solution of fresh spleen in saline caused a fall in the number of circulating erythrocytes within twenty-four hours after the first injection of about 8 per cent below normal. The day following the third injection, however, the red blood cell count was 7 per cent above normal, on the average, from which it fell gradually to normal within five days after the administrations were stopped. The hemoglobin percentage showed little constant change.

"Similar injections of fresh red bone marrow caused a gradual increase in the erythrocytes to 15 per cent above normal on the average, twenty-four hours after the third injection. From this figure, return to normal was noted within two days after administration was discontinued. The hemoglobin did not increase in proportion to the rise in the red cells.

"Similar injections of combined extracts of fresh red bone marrow and spleen resulted in an increase of 19.5 per cent on the average, in the number of circulating red blood cells on the day after the third injection, with a return to normal five days after injections ceased. The hemoglobin did not rise in proportion to the increase in the erythrocytes. There was no significant change in the urine output in any of these animals during the period of experimentation."

In all of these cases, however, it is to be noted that there is first a decrease in the number of reds, and that only subsequently to the decrease does an increase follow. Moreover, the narrow extract is more effective than splenic extract. It may be suggested that the erythrocytopoietic stimulus is here of the same nature as that present in the case of red cell destruction or elimination by other agents and not a specific splenic hormone at all. Even experimental hemorrhage gives somewhat comparable results (Hough and Waddell, '16). Brills' ('24) suggestion that the spleen perhaps elaborates a hormone which may control the normal tonicity of the capillaries—the absence of which hormone, in addition to the thrombocytopenia, and altered quality of the platelets under splenic influence, he believes to be an important etiologic factor in essential hemorrhagic purpura—remains an interesting speculation. The evidence for a specific splenic hormone is practically nil. This is only what was to be expected in view of the embryological and comparative anatomical data.

We are interested chiefly here, however, in extirpation experiments. Partial or total extirpation of the spleen in man, following disease or injury, has been often resorted to, apparently without serious consequence. Probably no less than 1,000 splenectomies are now on record, including partial and total splenectomies, done for various causes, including generally injury and disease. In 1908, G. B. Johnston collected from the literature 708 cases of human splenectomy, including 514 recoveries and 194 deaths, a mortality of 27.4 per cent.

"Eccles and Freer ('21) report a remarkable instance in which an abdominal operation, performed eight years after a splenectomy for rupture in malaria, revealed the presence of a spleen which was normal in size and appearance. Faltin, six years after, and Kullner, five years after splenectomy, found numerous small nodules of splenic tissue in the abdomens of their patients."* Faltin interprets his case as the result of a supplementary growth of latent hemolymph nodes.†

Splenectomies of laboratory mammals, particularly the dog, have been frequently performed since the beginning of the eighteenth century. Krumbhaar and Musser ('14), and Pearce and Pepper ('14) agree in attributing to splenectomy in the dog the effect of stimulating the hemopoietic activity of the marrow. The former noted an increased production of red cell in the marrow; the latter a conversion of yellow into red marrow. Meyer ('14) reports that splenectomy in the dog is not followed by an increase in the number or size of the hemolymph nodes, as claimed by Warthin ('03), nor by a production of accessory spleens. Austin and Pearce ('14) conclude, on the basis of their results with splenectomies on the dog, that the spleen, contrary to the claim of Pearce and Pepper, does not exert a constant and important function on iron metabolism. Hirschfeld and Sumi ('24) report the significant observation that in splenectomized rats, mice and guinea pigs, monocytes phagocytose red blood corpuscles in the circulating blood.

Similar experiments on lower vertebrates

*Quoted from Pool and Stillman.

†J. R. Lee (The Lancet, Vol. 1, pg. 1321, June 30, 1923) reports a case in which splenectomy had been performed at the age of 14, for traumatic rupture. Fifteen years later he reopened the abdomen for intestinal obstruction and, in the course of the operation, found the entire small intestine studded with small tumors, two of which were removed and diagnosed as splenic tissue by microscopic examination. These splenic tumors, about three hundred in number, totalled approximately the volume of the normal spleen.

have been recorded only thrice previously as far as I am aware. Drzewina ('05) reported splenectomies on anguilla (eel), with the result of a hyperplasia of lymphoid tissue of the kidney. Daiber ('07) removed the spleen primordium in the larval salamander (Siredon pisciformis). This resulted in the development of several accessory spleens, and the transformation into spleen-like tissue of a portion of the gut wall. Schonbauer and Sternberg ('24) extirpated the spleen in salamander and other animals, and report that the organ did not regenerate.

During the past three years Dr. Speidel and I, working in my laboratory, have performed no less than eighty splenectomies in frogs of various sizes and ages, and both sexes, at all seasons of the year. Approximately fifty per cent survived the first three week period after the operation. Of those that survived this period, a certain number died about the sixtieth day, with all the clinical and microscopic signs of anemia. These showed neither spleen, red marrow, nor hemopoietic activity anywhere. The remainder could be kept almost indefinitely. We have kept some alive as long as nine months without apparent sign of ill health or functional incapacity. Of these, five, including two partial and three total splenectomies, regenerated a new spleen, apparently normal and hemoptically very active. The remainder developed no spleen of characteristic gross appearance or normal site (near rectum). Among them, however, several showed a conversion of their fat bodies into a hemopoietic tissue resembling the spleen or marrow, a few developed active red marrow in the long bones, and the greater number showed a reversion to the condition of larval hemopoiesis, namely, blood formation in the kidney (mesonephros).

The extirpation experiments with frogs indicate that even here, where the spleen is practically the sole organ of hemopoiesis normally, it is not always essential to life; for its function may be assumed by any of the extensively vascularized areas of connective tissue; mesonephros, fat bodies or red marrow.

Finally, it may be stated on the basis of these three converging lines of evidence that the mesenchyme is the persistent mother tissue of blood; that the development of hemoglobin containing cells is related to an extensive sinusoidal vascular net-work; that the original blood mother-cell is a primitive lymphocyte; that the spleen, both embryologically and racially, is an organ which for a time best serves the needs of erythrocytopoiesis; that in higher development the red marrow offers a better location for this process, after which the spleen is abandoned and persists in a sense as an embryonic and racial vestige, with an erythrocytophagic function to be sure, but even this not essential in the presence of red marrow. From all of this emerges a working hypothesis which regards the lymphocyte as a relatively undifferentiated cell, with multiple developmental capacities, one of which is the capacity to differentiate hemoglobin in the presence of an extensive vascular net (possibly meaning relative predominance of CO_2 in the last analysis); further, that lymph nodes and spleen function in the formation of lymphocytes which in part are filtered out in the red marrow to differentiate into red blood cells. The ascription of both erythrocytophagic and lymphcytogenic functions to the spleen is not in contradiction of the conclusion that the spleen is an ancestral remnant, somewhat analogous to the vermiform appendix, for both of these functions can be assumed by marrow and lymph nodes in the absence of the spleen.

The spleen, then, is essentially an extensively vascularized mass of lymphocytes supported by a stroma of slightly differentiated mesenchyme, namely, the reticulum, which latter is also the mother tissue of the lymphocytes. The function of the spleen obviously inheres largely, if not exclusively, in the function of the lymphocytes. The presence of other large masses of lymphocytes, as in the lymph nodes and red marrow, presumably renders the spleen unnecessary, since its lymphocyte functions can be easily compensated for by hyperplasia of these other lymphoid areas. The outstanding functions of the lymphocytes are differentiation into erythrocytes, granulocytes and monocytes. The latter are essentially phagocytes. In the spleen, as splenic leukocytes or splenocytes derived in part also from reticular and endothelial cells, they digest effete red blood cells.

Though the normal function of the spleen appears of little essential consequence, under pathological conditions, as for example in leukemias and anemias, its disturbed functional activity produces, or at least accompanies, grave morbid conditions. In general these pathological conditions represent exaggeration

of the normal condition, namely, excessive abundance or activity of the phagocytes, or excessive lymphocyte production with inability of commensurate differentiation, producing blood conditions characterized by the presence of large numbers of immature cells. The pathology of the spleen is very largely explicable in terms of its developmental and evolutionary history.

It is apparent that the questions of the significance and the function of the spleen involve very intimately the question of hemopoiesis, and that of the stimuli which effect a lymphocyte differentiation into erythrocytes, granulocytes or monocytes. Without further discussion of granulocytopoiesis and monocytopoiesis, it may be remarked that both granulocytes and monocytes develop also from reticular cells as well as from lymphocytes, and in part also from endothelium. This multiple origin becomes comprehensible when one recalls the close genetic relationship between reticular connective tissue, endothelium and lymphocytes. We are interested here chiefly in the matter of correlation between red cell production and the cellular and vascular conditions which obtain in the spleen. In other words, the question of the fundamental erythrocytopoietic stimulus presents itself.

We may approach this matter by looking for the common factor in the histologic conditions of those organs in which red blood cells are produced: yolk sac, mesonephros, spleen, liver, fat bodies of amphibia, red bone marrow. In all of these locations there occurs a relatively undifferentiated mesenchyme, namely, reticulum, the mother tissue of lymphocytes, rich in sinusoidal capillary blood channels. Another common characteristic is the relatively lethargic flow of blood through these sinusoidal vessels. Further analysis of these common conditions reveals the fact, in at least two of these organs, that there is a relative predominance of venous blood. This is effected in the case of the mesonephros, ontogenetically and phylogenetically, by the occurrence of a renal portal system; in the case of the liver by a definitive hepatic portal system. In the latter organ the venous (portal) blood constitutes approximately sixty per cent of the hepatic vascular content (MacLeod and Pearce, '14). This means a relatively large amount of CO_2 in these organs. Conditions in the mesonephros and liver differ, however, in that in the latter erythrocyte formation is almost exclusively, if not entirely a matter of further differentiation of hemoblasts in the slowly circulating blood of the liver sinusoids; while in the case of the mesonephros, it involves both origin and differentiation of hemoblasts. The obvious fact of the predominance of CO_2 in the liver and mesonephros suggests the prevalence of similar conditions in the yolk sac, spleen, fat bodies and red marrow. In these locations a relative CO_2 excess may result from the very fact of slow circulation through the sinusoidal channels. In the case of the spleen, the largely open sinusoidal circulation would be especially conducive to CO_2 accumulation.

This line of evidence suggests the conclusion that the hemoglobin containing cells, that is, the erythrocytes, developed primarily as a CO_2 carrier from the tissues to the surface no less than as oxygen carriers from the surface to the deeper tissues. Smith, Means and Woodwell ('21) have shown that approximately eight times as much CO_2 is carried by the red corpuscles, as by the blood plasma in man. Of course, in the last analysis the carbon dioxide-oxygen exchange is a unit process—carboxyhemoglobin and oxyhemoglobin are simply two aspects of the same mechanism—and the function of transporting CO_2 cannot be dissociated from that of transporting oxygen either functionally or developmentally.

With few aberrant exceptions red blood corpuscles occur only in vertebrates; lymphocytes (leucocytes) throughout the whole series of metazoan organisms. In the lower vertebrates the lymphocytes predominate among the colorless elements. For example, in the frog approximately 70 per cent of the leucocytes are lymphocytes, only about 30 per cent are granulocytes. Moreover, in vertebrates, red blood corpuscles appear coincidently with the segregation of lymphocytes in the form of a primitive spleen, as in the round-mouthed fishes.

We may picture the evolutionary process somewhat as follows: In all but the very lowest vertebrates, like the lancelet, the plasma was no longer able effectively to carry the increasing amount of CO_2 resulting from the increasing metabolic activity of the tissues of more active vertebrates, like the fishes, nor the necessary amount of oxygen required by these tissues. The presence of chemically unattached CO_2 in the plasma may be assumed to have supplied the stimulus under which the circulating

lymphocytes elaborated hemoglobin as a means for binding and transporting CO_2, and as the reverse aspect of the same functional process, the binding and transport of oxygen. Indeed, the evolution of higher vertebrates was fundamentally dependent upon the development of an increasingly more efficient CO_2 — O_2 exchange mechanism. Concurrent with this evolutionary process of the erythroblasts, proceeded the evolution of respiratory organs: gills, fins, swimbladder and lungs; and an evolutionary process in the erythrocyte itself, culminating in the non-nucleated erythroplastid of mammals. This most efficient oxygen and CO_2 vehicle appears abundantly already in one of the tailed amphibia (Batrachoseps attenuatus), where 95 per cent of the red blood corpuscles lack nuclei (Emmel, '23).

To return to the hemopoietic tissues themselves: At the evolutionary stage represented by fishes, the spleen as a segregated vascularized mass of lymphocytes became a more favorable site for red cell differentiation than the mesonephros, in spite of a renal-portal blood system in the latter. Red cell production became shifted to the spleen, renal hemopoiesis being subsequently almost exclusively a matter of granulocyte formation. It is conceivable that much was gained by freeing the kidney, with its specialized urinary function, from its accessory function of erythrocytopoiesis. We now arrive at the evolutionary level represented by the anuran amphibia. Here the spleen is practically the sole hemocytopoietic organ, combining the quintuple function of lymphocytopoiesis, granulocytopoiesis, monocytopoiesis, thrombocytopoiesis, and erythrocytopoiesis. Already, however, lymphocytopoiesis is beginning to be shifted to primitive lymph nodes, and erythrocytopoiesis for a brief transient period after hibernation to red bone marrow. In birds and mammals this shift has become complete, the spleen persisting as stated above, largely as an ancestral remnant.

The question then arises as to why erythocytopoiesis and granulocytopoiesis were given over to the red marrow and lymphocytopoiesis to lymph nodes. As to the latter, when we recall that lymphocytes function greatly also in the matter of phagocyte production, much is conceivably gained by having patches of lymphocytes, with generous lymphatic connections, scattered over the body rather than segregated in a single locus. As to medullary hemopoiesis, it may be emphasized that red marrow did not arise primarily as a hemopoietic tissue. It arose as a necessary adjunct of osteogenesis and essentially for the nutrition of the bones, and was only secondarily appropriated by the hemopoietic process. And it is only at that level when the bones become of such relative size, as in the amphibia, as to require for purposes of most efficient function hollow shafts, that bone marrow appears. Obviously, if a bone like the femur, even in amphibia were solid, it would be too heavy and cumbersome for efficient use, and its substance would be too thick for effective nourishment from the periphery.

This extensively vascularized marrow of the bones, with its mesenchymal stroma and its sinusoidal, largely open circulation, offered a favorable locus for the differentiation of circulatory lymphocytes within its area. Thus, apparently, almost as if by accident, the red bone marrow became the chief seat of vertebrate hemopoiesis instead of the spleen.

Such evolutionary evidence suggests that the lymphocytes produced in spleen and lymph nodes, in addition to other differential possibilities depending upon varying environmental stimuli, have the capacity, when filtered out in the red marrow, to differentiate, together with the lymphocytes (hemoblasts) originating in the reticulum of the marrow, under the stimulus of CO_2, into red corpuscles. Embryological evidence supports the same view.

If, then, the lymphocyte has the ability under specific embryological and racial conditions to change into a red blood corpuscle, it ought to be possible to find certain pathological conditions in mammals where this process actually takes place in certain tissues. Theoretically, such conditions should be certain of those where the red bone-marrow is diseased and incapacitated for erythrocytopoietic function. Here we would expect the spleen to revert in certain cases to its original embryonic erythrocytopoietic function, or that failing, for the lymph nodes to assume compensatory erythrocytopoietic function. In 1915 Citron reported two cases of "micromyeloblastic leukemia," in which the myeloblasts differentiated from lymphocytic cells of the lymph nodes. In 1922 Fineman reported a similar case which he diagnosed as "microlymphoidocytic leukemia." He concludes that here also, "In all probability the majority of the 'myeloblasts'

and 'micromyeloblasts' of the blood were coming from the lymphoid organs." I now possess tissues, including lymph nodes, irradiated spleen, and marrow from a case apparently also interpretable as one of microlymphoidocytic leukemia, in which lymphocytes of the hyperplastic lymph nodes appear to be actually differentiating into erythrocytes. This case will be studied more intensively, and will be the subject of a later joint report. Its present interest pertains only to its confirmatory evidence to the conclusion deduced for embryological, normal histological, and evolutionary data as to a erythrocytogenic capacity of the lymphocyte, and to the significance of the spleen in so far as it represents a lymphoid organ.

LITERATURE CITED.

Austin, J. H. and Pearce, R. M., 1914. The Relation of the Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice. XI. The Influence of the Spleen on Iron Metabolism. Jour. Exp. Med., vol. 20, pp. 122-129.

Brill, N. E., 1924. Essential Hemorrhagic Purpura. International Clinics, vol. 1, pp. 32-40.

Carpenter, C. R., 1900. Splenic Extract and the Splenic Function. Med. Rec., vol. 57, p. 273.

Citron, J., 1915. Ueber zwei bemerkenswerte Falle von (akuter) Leukamie. Folia haematol, Bd. 20, S. 1.

Daiber, M. 1907. Zur Frage nach der Entstehung und Regenerations—fahigkeit der Milz. Jen. Zeitschr. fur Naturwiss. (Cited from Danchakoff).

Drzewina, Anna. 1905. Contribution a l'etude du tissue lymphoide des ichthyopsides. Arch. d. Zool. Exp., vol. 3, Series IV, pp. 145-338.

Downs, A. W. and Eddy, N. B. 1920. The Influence of Splenic Extract on the Number of Corpuscles in the Circulating Blood. Am. Jour. Physiol., vol. 51, pp. 279-288.

1922. Further Observations on the Effects of the Subcutaneous Injection of Splenic Extract. Am. Jour. Physiol., vol. 62, pp. 242-247.

Eccles, W. McA. and Freer, G. D. 1921 Enlargement of a Splenculus to Size of Normal Spleen. British Med. Jour., vol. 2, p. 515.

Emmel, V. E. 1924. Studies on Non-Nucleated Elements of the Blood. II. The Occurrence and Genesis of Non-Nucleated Erythrocytes or Erythroplastids in Vertebrates Other than Mammals. Am. Jour. Anat., vol. 33, p. 347-406.

Faltin, 1911. Finska lak-sallsk. handl., January (cited from Pool and Stillman).

Fineman, S. 1922. A Study of Micro-Lymphoidocytic Leukemia. Arch. Int. Med., vol. 29, pp. 168-220.

Hall, F. G. 1924. The Function of the Swimbladder of Fishes. Biol. Bull., vol. 47, pp. 79-117.

Harrower, H. R. 1916. A Further Note on the Therapeutic Value of Spleen Extract. Med. Rec., vol. 89, pp. 1000-1001.

Hirschfeld, H. and Sumi, I. 1924. Phagocytosis after Splenectomy. Klinische Wochenschrift, Berlin, vol. 3, p. 1361.

Hough, T. and Waddell, J. A. 1916. Blood Changes Following Hemorrhage and Perfusion. Am. Jour. Physiol. vol. 40, p. 1.

Johnston, G. B. 1908. Splenectomy (with Statistical Summary up to 1908). Ann. Surg., vol. 48, pp. 50-65.

Jordan, H. E. and Speidel, C. C. 1923. Studies on Lymphocytes. I. Effect of Splenectomy, Experimental Hemorrhage and a Hemolytic Toxin in the Frog. Am. Jour. Anat., vol. 23, pp. 155-187.

Jordan, H. E. and Speidel, C. C. 1924. The Fundamental Erythrocytopoietic Stimulus. Proc. Soc. Exp. Biol. and Med., vol. 21, pp. 399-404.

Krumbhaar, E. B. 1915. The History of Extirpation of the Spleen. N. Y. Med. Jour., vol. 101, pp. 232-234.

Krumbhaar, E. B. and Musser, J. H. 1914. The Relation of the Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice. X. Concerning the Supposed Regulatory Influence of the Spleen in the Formation and Destruction of Erythrocytes. Jour. Exp. Med., vol. 20, pp. 108-121.

MacLeod, J. J. R. and Pearce, R. G. 1914. The Outflow of Blood from the Liver as Affected by Variations in the Condition of the Portal Vein and Hepatic Artery. Am. Jour. Physiol., vol. 35, pp. 87-105.

Malpighi, M. 1686. Opera omnia. London. De liene 113.

Meyer, A. W. 1914. The Supposed Experimental Production of Hemolymph Nodes and Accessory Spleens. Jour. Exp. Zool., vol. 16, No. 2.

Pearce, R. M. and Pepper, O. H. P. 1914. The Relation of the Spleen to Blood Destruction and Regeneration and to Hemolytic Jaundice. IX. The Changes in the Bone Marrow after Splenectomy. Jour. Exp. Med., vol. 20, pp. 19-36.

Pool, E. H. and Stillman, R. G. 1923. Surgery of the Spleen. Surgical Monographs. D. Appleton and Co., New York.

Schonbauer and Sternberg. 1924. Regeneration of Spleen. Wiener klinische Wochenschrift. Vienna, vol. 37, p. 667.

Smith, L. W., Means, J. H. and Woodwell, M. N. 1921. Studies on the Distribution of CO^2 between Cells and Plasma. Jour. Biol. Chem., vol. 45, pp. 245-253.

Thiel, G. A. and Downey, H. 1921. The Development of the Mammalian Spleen, with Special Reference to its Hematopoietic Activity. Am. Jour. Anat., vol. 28, pp. 279-339.

Warthin, A. S. 1903. Contributions to Medical Research, Dedicated to V. C. Vaughan, Ann Arbor, p. 216.

Wiedersheim, R. 1907. Comparative Anatomy of Vertebrates. Macmillan and Co., p. 435.

CLINICAL CONCEPTION OF ANEMIA.*

By DOUGLAS VANDERHOOF, M. D., Richmond, Va.
Professor of Medicine, Medical College of Virginia.

The conception of all forms of anemia as symptomatic maladies rather than disease entities encourages study of the underlying causes of a condition that is very commonly encountered in clinical medicine. Only three factors are concerned in producing anemia: (1) Loss of blood by hemorrhage: (2) destruction of blood by hemolysis; and (3) defective formation of blood on the part of the bone marrow.

HEMORRHAGIC TYPE OF ANEMIA.

Loss of blood by hemorrhage may be acute or

*Read by title before the fifty-fifth annual meeting of the Medical Society of Virginia, at Staunton, October 14-17, 1924.

chronic. Except when due to gross traumatism, it is seen most frequently in instances of bleeding from the rectum, stomach and duodenum, and in excessive bleeding from the uterus.

The symptoms produced by hemorrhage depend very largely upon the rate at which the bleeding occurs. With rapid hemorrhage there is a pronounced loss of blood-volume with sweating, restlessness, increased pulse rate and rapid, shallow breathing. When the blood-volume becomes restored, although the blood loss has been great, the patient has comparatively few symptoms while at rest.

The blood picture in anemia due to hemorrhage shows a low color index and the red cells appear pale, or achromic, for the reason that they tend to increase more rapidly than the hemoglobin. Immediately after hemorrhage the bone marrow becomes very active and this is shown in an increased leucocyte count which may reach 15,000, an increase in the number of platelets up to one million per cubic millimeter, and an increase in the young, or reticulated, red cells which may reach ten per cent. Nucleated red cells may also appear. The average size of the red cells may be a little smaller than normal, but true microcytes are not seen.

In chronic anemia due to loss of blood, it should be understood that the response of the bone marrow varies according to the duration, frequency and the amount of repeated blood-loss. Recurring hemorrhage over a period of years may finally discourage the bone marrow to such an extent that the blood may never return to a normal state.

Hemolytic Type of Anemia.

Anemia due to blood destruction is seen in the acute form in certain cases of sepsis, especially that due to the streptococcus; also in malaria, due to rapid destruction of the red cells by the plasmodium; and in certain cases of poisoning, such as that produced by potassium chlorate, acetanilid, nitrobenzol and trinitrotoluol. A subacute hemolytic anemia may occur in septic conditions of a more chronic type, especially those due to the streptococcus viridans, such as infectious endocarditis. Chronic hemolytic anemia is seen most commonly in the disease-entity, pernicious anemia, and more rarely in those instances of chronic hemolytic jaundice. It also occurs in varying degree in syphilis, in cancer, in infections with the fish tapeworm and in pregnancy.

In all hemolytic anemias, there is evidence of blood destruction in greater or less degree. The skin and conjunctivae show a yellowish color varying from a light lemon to a distinct jaundice. The spleen and liver generally show some enlargement, and pronounced splenomegaly is a feature of chronic hemolytic jaundice, associated with definite icterus but no bile in the urine. Slight, irregular fever is not uncommon, especially during periods of excessive hemolysis.

Evidence of blood destruction is also seen in the excessive liberation of iron which is deposited in the liver, kidneys and other internal organs. The excretion of urobilin is increased in the feces and urine, and a clinical method of measuring the degree of hemolysis has been suggested by the determination of the increased excretion of bile pigments in the duodenal contents. The presence of increased amounts of bilirubin in the blood plasma gives to it a definite jaundiced color and, if no biliary obstruction is present, this change in color of the plasma can be measured and a rough estimate secured of the degree of blood destruction. Histological evidence of blood destruction may occasionally be seen in the frequency of microcytes, tailed cells, fragmented red cells and shadow corpuscles.

Associated with the blood destruction there is a compensatory effort on the part of the bone marrow which results in abnormal blood formation. Extensive proliferation occurs and the marrow throughout is red, the fat being replaced by hyperplastic tissue. This pronounced activity of the bone marrow gives rise to the characteristic blood picture of all hemolytic anemias, but it is in pernicious anemia that the most typical histological blood changes are observed. These alterations from the normal consist of a high color index, macrocytosis, nucleated red cells, leukopenia and diminished platelets.

Many of the hemolytic anemias are definitely due to the effect of poisons or toxins, as seen in instances of acute or chronic sepsis, and in poisoning by certain drugs or chemicals. The etiological factors in pernicious anemia and in chronic hemolytic jaundice are quite unknown. In pernicious anemia, however, the constant association with a complete achylia gastrica, which has been shown in some instances to have preceded the blood changes by many years, probably gives rise to a secondary intestinal

poisoning with the formation of a hemolytic toxin. Furthermore, spinal cord changes with involvement of the pyramidal tracts occur in about 80 per cent of all cases of pernicious anemia.

Quite recently, A. F. Hurst,[1] in England, and the writer,[2] in this country, have called attention to the constant association of achylia gastrica with combined sclerosis of the spinal cord, without the accompanying blood picture of pernicious anemia. These findings suggest very strongly that in true achylia gastrica a neurotoxin as well as a hemolytic toxin may be produced, the former having a special affinity for the posterior and lateral columns of the spinal cord, and the latter producing its effect on the hemopoietic system.

Aplastic Type of Anemia.

Anemia that depends upon defective blood formation includes the simple chronic anemias, chlorosis, so-called myelophthisic anemia and aplastic anemia.

Simple chronic anemia associated with defective blood formation occurs in various infections, in intoxications from diseases of the kidneys and liver as well as in poisoning from benzol, lead, mercury, etc., and in many chronic conditions, such as carcinoma, pregnancy, and in disturbance of the endocrine glands. The blood shows a low color index, the red cells are pale, or achromic, and show a tendency to be slightly smaller than normal; the white cells and platelets are normal or very slightly increased, and young reticulated red cells and nucleated red cells are not apt to be found. The patients with simple chronic anemia are pale and not yellow.

Chlorosis is a form of anemia occurring only in girls between puberty and full maturity. The exact nature of the disease is unknown, but it is supposed to be due to hypoactivity of the bone marrow. It is quite possible to conceive of some congenital deficiency of the hemopoietic system that is not capable of meeting the regular monthly blood-loss by menstruation over a period of some months or years, after which some compensatory adjustment occurs. The striking feature of the blood picture is the very low color index, with a hemoglobin percentage of 45 to 50 and a red count that is only slightly below normal. In other words, each red cell shows a pronounced reduction in its hemoglobin content. The leucocytes are normal in number or slightly reduced while the platelets may be slightly increased. Abnormal red cells are not found. It is important to remember that the girl with chlorosis is essentially healthy except for the anemia, and instances of tuberculosis, nephritis, myxedema and chronic focal infections should be excluded. Probably the most interesting fact about the disease, chlorosis, is that it is seen much less frequently nowadays than a few decades ago, and no satisfactory reasons have been advanced for this declining incidence of the "green sickness."

Myelophthisic anemia is the term applied to the condition in which the normal marrow tissue is crowded out by tumor formation. It occurs in both myelogenous and lymphatic leukemia, in instances of myeloma and chloroma and in metastatic growths. In an individual suspected of having malignant disease, the presence of many nucleated cells in the blood smears is very suggestive of metastases to the bone marrow. A marked reduction of the platelets may ensue, followed by a purpura hemorrhagica. In leukemia, especially, the involvement of the marrow may be so extensive that no normal marrow tissue may be found at autopsy and the blood picture becomes that of a typical aplastic anemia.

Aplasia of the bone marrow may occur without known cause in the form of a disease entity known as idiopathic aplastic anemia. In other instances, the aplasia is definitely secondary to some recognized cause, such as poisoning with benzol or trinitrotoluol. Occasionally aplasia occurs in overwhelming sepsis in which the marrow is poisoned directly, just as with benzol.

The etiology of so-called idiopathic acute aplastic anemia is unknown. It runs a progressive course to a fatal termination in from one to three months and occurs most commonly between the ages of 15 and 30 years. There is no evidence of increased blood destruction, and the gastric juice is generally normal in contrast to the persistent achylia gastrica in pernicious anemia. The patient appears pale and the sclerae are of a dead white color and never yellowish. Petechial hemorrhages and

1. Hurst, A. F., and Bell, J. R.: The pathogenesis of subacute combined degeneration of the spinal cord, with special reference to its connection with Addison's (pernicious) anemia, achlorhydria and intestinal infection. Brain, 45: pt. 2, 266, 1922.

2. VanderHoof, Douglas: The etiologic relation of achylia gastrica to combined sclerosis of the spinal cord. The relief of symptoms following adequate hydrochloric acid therapy. Arch. Int. Medicine, 32: 958, 1923.

bleeding from the mucous membranes give rise to the picture of a symptomatic purpura hemorrhagica, which is evidently dependent on the low platelet content of the blood in this disease. In addition to this striking diminution of the platelets, the red cells progressively diminish in number; show about a normal hemoglobin content, i. e., the color index is normal or but slightly reduced; polychromatophilia, stippling and nucleated red cells do not occur, and the white cells show a progressive leukopenia with marked diminution of the polynuclear and eosinophile cells. In other words, the blood examination gives a very clear picture of the progressive inactivity of the bone marrow with evident inhibition of the formation of all new marrow elements. At autopsy the bone marrow is no longer red in color, but shows practically complete fatty degeneration. Unlike true hemorrhagic purpura, with which acute aplastic anemia is sometimes confused, there is no favorable response to blood transfusions in the latter disease.

Finally, it should be understood that mixed types of anemia occur. A patient with a hemolytic anemia may also have bleeding hemorrhoids, or purpura hemorrhagica may occur secondarily either to sepsis, or to a blood disease, such as leukemia. The blood picture varies very definitely according to the functional state of the bone marrow. Therefore, it may be said that in between the anemias due to lack of blood formation, on one hand, and the conditions of pure blood destruction, on the other hand, occur mixed types where both hemolysis and an inactive bone marrow play their parts. Modern histological studies of the blood and hemopoietic organs, serum reactions, platelet studies, fragility tests, vital staining, chemical changes in the plasma and cells, and finally studies in the oxygen and carbon dioxide content of the arterial and venous blood, all these investigations are adding very materially to our conceptions of anemia and the diseases accompanied by changes in the normal blood picture.

608 *Professional Building.*

PULMONARY TUBERCULOSIS IN CHILDREN OF SCHOOL AGE.*

By CHARLES R. GRANDY, M. D., Norfolk, Va.

Some fifteen or twenty years ago, when I was young in tuberculosis work, I was rash enough to hazard the opinion that there were so few cases of pulmonary tuberculosis among children, that it need not be considered as a health problem. Of course, I have learned better long ago, but it is an interesting fact that none of my hearers at that time controverted my assertion, but let it pass unchallenged. Since this time actual experience has made me change my opinion, and I have recently verified it by a tabulation of the death records in my clinic for the last five years. The results obtained have been so interesting to me and so at variance with my old impression, that they may prove of interest to others and be of practical importance in public health work. And I may note here that my records now agree with the statistics gathered by Dublin of the Metropolitan Life Insurance Company and with those of the Census Bureau.

I have tabulated the deaths occurring in our clinic patients from pulmonary tuberculosis during 1920, 1921, 1922, 1923, and up to August 1, 1924. There were forty-three such deaths among our white patients and one hundred and forty among the colored. In school age, that is between six and twenty, there were four white deaths and forty-three colored deaths, or to put it into percentages, 9% of our white mortality occurred during school age, and 29% of our colored. If these percentages are true for the State of Virginia, we would have had, in 1922, 9% of our 1,464 white tuberculosis deaths, or 132 deaths among our white children of school age; 29% of 1,647 colored deaths, or 478 deaths among the colored; and a total of 610 deaths in the period when children are supposed to be at school.

As these figures are greatly in excess of what I thought true before I compiled them, it will be interesting to note that they correspond pretty closely with the Census Bureau figures for Virginia in 1920 and 1921, which give 445 and 464 deaths, respectively, between the ages of five and nineteen, the difference between our figures being largely due to the fact that there are many more deaths from tuberculosis in the twentieth year than in the fifth. It is also rather startling to find that there are more than twice as many deaths from pulmonary tuberculosis in children of school age than there were found typhoid fever for all ages, there being in 1922 only 266 deaths from typhoid. As our health departments are still expending their greatest efforts most success-

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

fully against typhoid, it cannot be gainsaid that a disease that is killing more than twice as many children in the school age period is a problem which deserves the most serious attention on the part of our school an health authorities.

If we have this large mortality from pulmonary tuberculosis in children of school age, we must of necessity have many more active cases, who, associating closely with other and younger children, present a tremendous source of infection, but one which we apparently should be able to control more easily than when found in the general population. This is especially true among the colored people, where my figures show 29% of their total tuberculosis deaths to occur in this age period. This, by the way, is corroborated by statistics presented by Louis Dublin, in his paper, "Mortality from Tuberculosis among Wage Earners," which shows that deaths from tuberculosis among the colored occur much earlier than among the white people and that this mortality reaches its peak about the age of twenty. He also shows that between five and fourteen the tuberculosis death rate for colored males was more than ten times that of the whites, and for females eight times.

In our clinic work, which includes quite a large number of children, we have found certain differences between the patients in the two races, which may be of interest both theoretically and practically. There are one hundred and sixteen white children on our roll at present, but all, with the possible exception of seven cases, are distinctly of the juvenile type, that is the infection is apparently still in the bronchial glands, though these cases have all shown such symptoms as malnutrition, afternoon rise of temperature, frequent coughs, and weakness, and as a rule close contact with a positive case of tuberculosis. On physical examination we find a positive d'Espine sign, accentuated, harsh breathing, with increased voice sounds over one or both upper lobes behind, often associated with slight dullness, and at times with transient rales. When the rales, cough, and fever persist, and the child loses flesh and strength, we feel that the case is changing from a glandular to a lung involvement, which may develop into a distinct early adult type of tuberculosis, and from a practical standpoint become a bed or sanatorium case. Such are five cases, some four per cent of the total. Four of these were sent to Blue Ride Sanatorium and the fifth treated at home. All seem to be doing well at present. The sixth case is a little girl with persistent rales in the lower lobes, in whom the X-ray shows considerable peribronchial thickening and studding. The seventh case, a girl of eighteen, is an advanced adult type, who did only fairly well at Catawba.

This year we have had ninety-four patients of school age among the negroes. Of these I have classified sixty-five as belonging to the juvenile type, and twenty-nine, including five deaths, to the pulmonary types, which is thirty-one per cent, against a possible six per cent among the white children. Most of the pulmonary cases are of the distinct young adult type with upper lobe involvement, at times going into extensive cavitation. Two had rather acute conditions, primarily involving the lower lobe. One of these is dead and the other going down rapidly. Two of the younger children have a more chronic lower lobe involvement, one apparently having started in a spinal tuberculosis. A boy of twelve was first seen with the worst broken-down glands of the neck I have ever seen, along with involvement of the upper lobes. He died promptly. There is a marked difference in the resisting power of cases in this age group. Some apparently have no resistance at all, and this lack of resistance often seems to be a family trait. On the other hand, some children apparently have more resistance than any other age group in the colored race. We now have two children, aged twelve and eight, with large cavities. Both have been sent to the sanatorium, and both given bad prognoses when they were discharged. Still they both continue to live and the older one to improve in health, while adult sanatorium cases, sent home at later dates as quiescent or arrested, have already died, or are fast going to pieces. In this connection Dr. H. G. Carter wrote me, "I know that theoretically a child under sixteen years of age with the same amount of involvement in its lungs as an adult of thirty is not likely to improve, but it is our experience that we get better results from children from eight to sixteen than from adults." And I may add that it is our experience in Norfolk from these and other cases, that children, who have come home from Piedmont, continue to do better than similar adult cases. I have known children to get well

and stay well with large cavities, but cannot remember such an experience with a colored adult.

Now come the practical questions, "What are we doing to control this situation?" and "What else should we do?" I am merely going to try to answer them from my local experience, as I am not in a position to know what is being done in other cities, but other workers can take this and compare what they are doing with the work in Norfolk.

Let me first discuss the work among our white children, which for a number of years has been a main feature of the preventive work of the Norfolk Anti-Tuberculosis League. Let us suppose we have an underweight, delicate child, with a history of contact, of frequent colds and slight rises of temperature, but with only minimal demonstrable lung changes; in other words, what we formerly called a "pretuberculous" case, but now a case of the "juvenile type."

Such a case can usually be taken care of in a well run open-air school room, or even in an ordinary class room, if the teacher will cooperate, watch him carefully, see that his nutrition is maintained, and make him report regularly at the clinic. A case like this, as I have repeatedly pointed out, has no real lung involvement, but is almost always a case of infection of the bronchial glands, and as such has no sputum and is of no danger to the other children. Being a gland case and not a lung case, it is not necessary to report it to the health department. If, however, a case of this description does not do well, but the symptoms and signs increase, it ought to be taken out of school and put to bed either at home or in a sanatorium, for there is now danger that the gland case may be changing into a lung case, which for its own sake and the safety of others should be taken out of school.

During summer vacation children of this type should, if possible, be sent away from town and their weight and strength built up. The Anti-Tuberculosis League of Norfolk is able in the summer to care for twenty-five or thirty children, who still need special care, but who are not bed cases, at its cottage or preventorium, at Willoughby Beach. After such a summer the children are not only much better physically, but do much better work at school. They are nevertheless kept under pretty strict supervision, are made to report regularly at clinic, and possibly are sent back to the beach the next summer. At any rate, no child is discharged simply because it is doing well, but is kept under supervision for several years. We feel that this work is showing good results, which may account for the fact that all four of our deaths from tuberculosis in white children occurred in 1920 and 1921 and none in 1922, 1923, or 1924. This, however, may only be a coincidence, for I am certainly not sanguine enough to expect this record to be kept up.

I am sorry to say that our work among the colored children is not nearly so satisfactory, either in methods or results, though we hope to do much better this year as we are laying more stress on this feature of our work, and the schools are also able to give us better facilities. In the first place, we are not getting so many colored children for examination. This is partially due to the fact that we have not so much to offer the colored children, as we have no beach camp for them, and before this session had no open-air rooms in the colored schools. Then, it is much more difficult to find cases of the juvenile type among the colored children as the weight charts are made for white children, who normally seem to weigh less than the colored, and consequently are of much less value in finding cases of malnutrition among the latter. The other symptoms, too, appear later in colored people, it being quite common to find well marked physical signs of tuberculosis in a case with no loss of weight and just beginning cough and fever. In spite of this, we have nearly as many colored children as we can properly care for at our clinic and I am rather fearful of being swamped, when we begin aggressive work in the colored schools. In the white schools we say that a child with any two of the following groups of symptoms needs a physical examination:

(1) Children who are 10% or more below normal weight or have fatigue posture.

(2) Children who have frequent coughs or colds.

(3) Children who lack energy, tire easily, or have afternoon rise of temperature.

(4) Children who come from a tuberculosis household.

In colored children, till we can get a special weight chart for this race: (1) should read, "children who are below normal weight," in-

stead of "children who are 10% under normal weight, for the weight and posture of the colored child is much better than that of the white child. The teacher or nurse should depend on her own observation rather than on what the child says, for a colored child always says he feels well, even if he has a good high fever, a headache and a bad cough. And finally, all doubtful cases should be referred to the school doctor or clinic for examination. In this way I believe we will get hold of most of our cases in the elementary schools, but it will call for work and a larger medical staff than we have at present. In the colored high schools the same plan may be followed, but it would be better to give each child a careful chest examination, so great seems the tuberculosis morbidity in this group.

Summary.

There are marked differences in tuberculosis in white and colored children. The white situation is being apparently pretty well controlled by a combined use of clinic, nutritional work, open-air classes, preventorium and sanatorium. The much larger morbidity and mortality among colored children show the need of more intensive work in the schools. Here a careful examination will allow us to get hold of the children long before they would report of their own free will, and at a time when many will get the best results from sanatorium treatment. When we realize that nearly a third of the cases of consumption in the negro can be found in children of school age and that we have twice as many deaths here as from typhoid in both races for all ages, we see before us a health problem of the greatest magnitude, and at the same time a new and perhaps simpler way of attacking it. The differences in the resisting powers make tuberculosis a different problem in the two races. Methods which have been found most efficient among white people, have not been equally as efficient among the negroes. The earlier morbidity among the latter points to the school as the place where our greatest efforts should be made to check tuberculosis among them. Here we have a great public health opportunity, which should allow us not only to reduce tuberculosis among the negroes, but also among the whites, with whom they come in such close contact.

Bank of Commerce Building.

CARCINOMA OF THE PENIS.*

By C. P. HOWZE, M. D., University, Va.

The purpose of this paper is to present an analysis of seventeen cases of malignant growths of the penis, treated at the University of Virginia Hospital during the past twelve years.

Tumors of malignant character involving the penis are usually carcinoma. Sarcoma is comparatively rare, there being only thirty-two authentic cases reported in the literature (Jolson). All cases in our series were carcinoma, the incidence of which is from 1 to 3 per cent of all cancers in the male (Ewing).

The course of the disease is insidious, and many cases run for several years before reaching a critical condition. In this series, there were two cases of three years' duration, in one of which there was no carcinomatous involvement of the inguinal glands. Local extensions occur late, due to the dense connective tissue protection surrounding the corpora cavernosa. These facts should make penile carcinoma a most favorable one for complete cure, provided the diagnosis is made during its incipiency. Unfortunately, the majority of cases which we have seen have been rather far advanced, and it does not seem amiss to call attention to the early symptoms, in the hope that the diagnosis may be made before there are local extensions of the disease and involvement of the inguinal lymphatics. Intelligent treatment applied early will result in a high percentage of cures.

In regard to etiology, we are still in the dark. There are, however, several predisposing causes, the most frequent of which in this series, as in other reported cases, is phimosis. In nine cases the first symptoms noted were irritation and discharge from under the prepuce. In most of these the foreskin had been adherent since birth. The presence of a foul discharge with phimosis in elderly men should always excite suspicion of cancer. The relative frequency of phimosis as a forerunner of cancer and the fact that Jews are practically free from the disease, is a most convincing argument in favor of circumcision. There were two cases dating the onset of the growth to circumcision which failed to heal. In a series of thirty-six cases reported by Barringer and Dean, eleven believed the growth resulted from

*Read before the fifty-fifth annual meeting of the Medical Society of Virginia, at Staunton, Va., October 14-17, 1924.

circumcision. Thus, it would seem advisable that circumcision be done at an early age as a prophylactic measure.

The average age in our series was sixty years, the youngest being thirty years and the oldest seventy-four. The largest number, seven, occurred between the ages of sixty to seventy. There were six negroes and eleven whites in the series. Heredity seemed to play no part.

Only one case gave a previous history of venereal infection, which, from description, was a chancroid. Wassermanns were taken in only six cases, five being negative and one 2-plus. Barney in a series of one hundred cases had two with a definite history of a specific lesion, with the cancerous process beginning on the site of the chancre, while De Marquay records ten cases in a series of 59 and believes syphilis comes next to phimosis as a contributory factor. It seems that in some cases syphilis plays a part in the etiology.

There are two types of growth, (1) the ulcerative, with marked indurated base and edges, spreading rapidly, with tendency to destruction of the glans and invasion of the corpora cavernosa, and (2) the cauliflower or papillomatous. Nine cases were typically of the ulcerative type, while eight were of the proliferating group. In the long standing cases, it is rather difficult to determine the primary nature, as in the later stages the papillomatous type tend to break down and ulcerate. The type at onset is especially difficult in cases which have been obscured for long periods of time by an adherent foreskin. Both types metastasize with about the same frequency to the inguinal glands.

The location of the primary lesion was given as dorsum of the glans near the corona in six cases; the foreskin in four; in the region of the frenum in one; and in six it was undetermined, owing to the fact that there was an adherent prepuce and the growth had involved the entire glans and prepuce at the time of admission.

The early symptoms in nine cases were itching and discharge from under the foreskin. The longest period of time elapsing between these symptoms and admission to the hospital was three years. The average was ten months. Five noted small ulcers which gradually spread and three small warty growths on the dorsum of the penis. Two cases, dating the onset to circumcision, were of the epitheliomatous ulcer type. Of the late symptoms, hemorrhage was noted in two cases and one presented several urinary fistulae. In this case, there was entire destruction of the shaft of the penis with a carcinomatous ulcer and fistula at the peno-scrotal angle and bilaterial carcinomatous involvement of the inguinal glands. This was one of the earlier cases of the series, and was considered inoperable. In view of the recent advances in radium and X-ray therapy it is possible he could have been benefited by these measures. Unfortunately as in cancer elsewhere in the body, pain is a late symptom and occurs in only a small percentage of cases. The pain when present is usually lancinating in character. There was one case with far advanced carcinoma who complained of slight darting pains in the growth.

Thirteen cases, or 76 per cent, presented bilateral inguinal adenopathy of varying degree; three, or 17 per cent unilateral; and in one no glands were palpable. In only six cases are pathological reports obtainable on the glandular involvement. Of these five showed chronic inflammation with no carcinomatous invasion, while one was definitely carcinomatous. Of the remaining, six were grossly involved and four undetermined at the time of operation. It is readily seen from these figures, that the disease is slow in metastasizing to the inguinal glands. In the early glandular enlargement it is almost impossible to differentiate by palpation the hard indurated gland of chronic infection resulting from continual absorption from the infected growth, and that of metastatic carcinoma. The chronically inflamed glands show a marked diminution in size following removal of the primary growth by amputation. This was well illustrated by one case, admitted in poor condition, with a large indurated carcinomatous ulcer involving the entire dorsum of the glans and bilateral inguinal enlargement. The penis was amputated at the peno-scrotal junction without removal of the inguinal glands, and a complete recovery was made. There was a marked diminution in size of the glands following operation. Patient died two years later of pneumonia with no evidence of recurrence of cancer. It must be borne in mind, however, that diminution in size of the inguinal glands following removal of the primary focus does not rule out carcinomatous involvement, as in prac-

tically all cases of metastatic growth there is an associated infection.

In only one case of this series was there noted any apparent involvement of the dorsal lymphatics, the primary growth having begun only three months previous to admission. It is especially noteworthy that this is the only case in which there was no enlargement of the inguinal glands. The dorsal lymphatics following the dorsal vessels could be palpated as fibrous cords for one and one-half inches. Following complete amputation of the penis, excision of glands of both inguinal regions, transplanting the urethra to the perineum, the patient is now symptom-free two and one-half years after operation.

As the inguinal glands are invaded by both pyogenic organisms and cancer cells, they occasionally undergo suppuration. This was seen in one case with a far advanced growth invading the entire distal third of the penis. There was a large indurated mass of carcinomatous glands in the left groin firmly fixed to the skin and underlying structures with several fluctuating areas over which the skin was quite reddened. Incision and drainage was followed by an extensive ulcerating growth similar to the primary one on the penis.

In no case was there evidence of metastasis to the pelvis at the time of admission. One patient died four and a half years following operation, apparently from carcinoma of the pelvic lymph nodes. At the time of death there were a number of indurated areas in the region of the prostate.

The method of treatment must be adapted to the individual case. In very early cases, amputation of the penis with extirpation of the inguinal glands will usually effect a cure. Barringer and Dean have recently reported a series of 36 cases, treated by radium and X-ray in conjunction with surgery, with excellent results. In cases showing no lymphatic involvement or inflammatory hyperplasia of the glands, they obtained good results without extirpation of the glands. Their results have been so favorable that they have adopted the following methods of treating the inguinal lymphatics:

(1) If no nodes are palpable, the groins are radiated and watched.

(2) If nodes are palpable, but thought to be only infectious, the primary focus in the penis is treated, and the groins radiated and watched.

(3) If the nodes are carcinomatous, and this diagnosis is hard to make, they are radiated, and then bilateral dissection done with radium buried along the lymph channels, either in the form of bare tubes or screened radium, the most important place to radiate being the lymph channels around the saphenous opening.

(4) If the nodes are thought to be infected and carcinomatous, the lesion on the penis is dealt with, and the source of infection cleared up before the inguinal nodes are touched.

(5) If the nodes are dissected out, the wound is partly sutured, and Dakin's tubes left in place, so that Dakin's irrigation may be employed until granulation occurs.

If we may assume that a period of three years of freedom from the disease is a criterion of cure, sufficient time has not elapsed in the cases of Barringer and Dean to justify any definite statement in regard to cures. It seems certain that radium and X-ray are to form important adjuncts to the surgical treatment in the future. In the light of our present knowledge, they should not supplant surgery but be used in conjunction with it.

In two cases of our series, simple amputation of the penis alone was performed; in one, an inoperable case, it was done purely as a palliative measure. This patient died two months later. The second case, previously mentioned, lived two years without recurrence. In twelve cases, amputation was accompanied by bilateral extirpation of the inguinal glands. In two of these cases, the entire penis was removed, and the urethra transplanted into the perineum. Of these twelve cases, in three instances no replies were received to inquiries. Of the remaining nine, one lived seven years, dying from local recurrence of the growth; one lived nine years, dying of heart disease; one died five years later of pneumonia; one, four years, with evidence of metastasis to the pelvic lymphatics; and five are now living seven and a half, five, four, two and a half, and two years, respectively, after the amputation. They are in good health and without any evidence of return of the disease.

The only case in which radium was used was in an extensive fungating growth involving both corpora cavernosa to the base of the penis. Four applications were made to the penis and inguinal glands with little or no improvement.

The patient lived six months. Two cases were considered inoperable at the time of admission. One lived three months and the second eighteen months.

Conclusions.

(1) Carcinoma is the most frequent tumor attacking the penis.

(2) The highest percentage of cases, 41 per cent, occur between the ages of sixty and seventy.

(3) The most frequent predisposing cause is phimosis, which was noted in 53 per cent of the cases.

(4) The presence of irritating discharge with phimosis should always excite suspicion of cancer in patients past middle age.

(5) Circumcision should be performed at an early age as a prophylactic measure.

(6) Metastases take place relatively late, the growth remaining localized to the glans or prepuce.

(7) The inguinal glands are involved by either infection or carcinoma in large percentage of cases—94 per cent in this series.

(8) The deep lymphatics of the penis may show involvement without superficial glandular enlargement.

(9) The treatment of choice is amputation of the penis with extirpation of the inguinal glands, followed by radiation. Radium and X-ray are important adjuncts to surgery in all advanced cases, and may prove to be the method of choice in certain selected cases.

References.

Jolson: A Case of Sarcoma of the Penis. Boston M. and S. Jour., 1923, p. 715.

Ewing: Neoplastic Diseases. 1922. W. B. Saunders Co.

Barney: Epithelioma of Penis. Annals of Surgery, 1907, XLVI, p. 890.

Barringer and Dean: Epithelioma of the Penis. Jour. Urol., May, 1924, XI, p. 479.

Discussion.

Dr. Chas. Y. Bidgood, Richmond: In treating carcinoma in any part of the body, one is dealing with the most serious of all pathological conditions, therefore one should use, in every case, all of the agencies available, except in those cases which are so far advanced that hope for cure is abandoned, and palliative treatment is the only course which is justifiable.

Carcinoma of the penis as a rule presents one of the most favorable types of malignancy. It is usually basal cell in type and metastasizes relatively slowly. When metastases do occur, they are in the dorsal lymphatics of the penis and in the glands of the groin and femoral canal, both of which are readily accessible to the surgeon, and the operation for this removal is simple. Therefore, I cannot agree with Dr. Barringer that these glands should be left in, radiated and watched in any case, except when the age or the general condition of the patient contra-indicates their removal. They should be removed surgically, and radium and X-ray used afterwards in all cases. To fail to remove the glands is courting disaster.

The cases in which Dr. Barringer advises against removing the inguinal and femoral glands are the early cases which present the best prognosis, and certainly one is more justified in being radical when there is a good chance for a cure than when metastases have occurred, and the prognosis is much poorer.

SOME COMMENTS ON SURGERY OF THE FEMALE PELVIS.*

By A. M. SHOWALTER, M. D., F. A. C. S., Christiansburg, Va.

By way of explanation, I wish to state my selection of the subject for discussion on this occasion is based on the fact that for years we have been taught conservatism in the surgical treatment of the female generative organs, and because of the fact that my experiences during the past fifteen years have warranted the conclusion that I personally have more often made the mistake of being too conservative in the removal of the tubes and ovaries than was apparently good for the patient's welfare, either physically or financially. This brings the question to my mind whether or not the pendulum has swung a little too far in the direction of conservatism from a viewpoint of the welfare of the patient, and from the standpoint of health. I do not wish to be understood as saying we should not use extreme caution and care lest we may become too radical in our treatment of the female generative organs, but I do wish to emphasize the point that had I been more radical in my surgical work I am convinced my patients would have had less operative experience, less financial expense, and enjoyed far better health in those cases of this type which I have had occasion to treat during the last fifteen or sixteen years.

It has generally been recognized for years that the human ovary has a double function to perform, namely, the formation of the ova cells and the production of hormones which have some rather vaguely understood physiological effect on the human economy. I am quite in accord with some of the views of certain authors, and agree with S. Goldberg, *Buffalo Medical Journal*, 1915-16 Vol. 71, page 173, when he states "The ovary, being an organ of such vital importance to the female economy,

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

its operative conservation should be ever uppermost in the mind of the surgeon because of its three-fold function; the causing of menstruation, the secreting of ova and hermones." However, I am not fully convinced of his statement following this, namely, "There is no condition, mechanical or pathological, except extremely rare, in which the ovary is so thoroughly incapacitated from its normal functioning, but that some part of it may be conserved in the interests of the patient." I mean to say, in other words, that the conclusion above may be correct, but the question of a macroscopical distinction as well as a prophetic instinct to determine when a portion of a diseased ovary shall be left is one of the most difficult things confronting the surgeon in handling these cases. He further states: "The absence of the ovary destroys that normal hormone cycle of all ductless glands." This latter statement may or may not be correct, but as far as my experience goes it would not justify this conclusion.

Quoting from H. S. MacLean, *American Journal of Surgery*, Vol. 31, 1917, page 240, "We cannot explain the comparatively abrupt cessation of menstruation at the menopause on any known histological or physiological basis." And, again, "A conservative operation may always be supplemented by a second; a radical operation can not." Quoting from the same author again, he states "Gordon, in his study of 112 cases, brings out some very interesting facts. In 34 of his cases double oophorectomy was performed for *vague* disturbances in the abdomen, together with a train of indefinite nervous symptoms. None of these patients was permanently benefited. Nine showed an immediate improvement in the pre-existing functional disorders, but shortly thereafter the former conditions returned. In 75 cases, complete hystero-oophorectomy was performed. The removal of the diseased organs removed the localized discomfort but in the months following the operation, symptoms of a more distressing character began to develop. In the large majority the former nervousness not only remained but became accentuated." Among his conclusions, the following may be quoted: "As in the removed organs healthy portions of tissue were invariably found, it is to be supposed that the removal of the latter is in some relation to the morbid phenomena observed after the operations. The logical conclusion seems to be that one must be very cautious in advising operation on the generative organs and the tendency should be to oppose as much as possible the removal of any amount of normal tissue found in the uterus or ovaries. No operation should be advised on healthy organs if a woman complains of *vague* nervous symptoms." * * * "It has long been the contention that while it was right and proper to practice conservatism when dealing with diseased ovaries alone, there is no use in considering the ovaries or in making any special effort to retain them or any portion of them when the uterus is removed, as the latter operation effectually terminates menstruation and renders the ovaries useless and negligible. It is believed that surgical judgment has been bad in these cases, and has been contrary to what we can assume to be the character of the ultimate ovarian function. If we cannot be absolutely certain that the ovaries have no function beyond ovulation and menstruation, we must not sacrifice these organs as a matter of expediency or because their removal is a feature of a well-developed technic." Again "In hysterectomy for uterine diseases, both the ovaries are invariably left, irrespective of the patient's age, unless they are so badly diseased as to be a menace to the patient's health. The mere fact that an ovary contains one or more cysts is no reason for the removal of that organ." Concluding his remarks, he states: "The fact that the nervous and mental symptoms following artificial menopause are apt to be more violent and more lasting than those following the normal menopause is additional evidence that the ovary has been concerned in something else besides ovulation and menstruation."

Falta Myers, in his book on "Ductless Glandular Diseases," calls attention to the well-known fact that removal of the uterus and leaving the tubes and ovaries or any portion thereof intact, is often followed by the usual menstrual disorders or molimina of headaches, backaches, and nervous excitation.

From the above quotations which, generally speaking, I believe are accepted as true by the majority of the medical profession, I am inclined to believe that, based on my own experience, there is a frequent mistake made in too conservative surgery of this type.

By way of comparison of the results above referred to in the high percentage of unfavorable symptoms following surgery of this type, I wish to call attention to some operative work performed in the New Altamont Hospital, at

Christiansburg, Virginia, during the past fifteen years. These reports cover operations on 229 cases, divided as follows: supra-vaginal hysterectomy 53, pan-hysterectomy 12, A. R. L. S. 100, ectopic pregnancy 3, Caesarean section 11, operations on tubes and ovaries 63, subperitoneal fibroid of uterus 1, ligation of tubes 2, and D. and C. and Bassini 1. Thus, there were a total of 246 operations on the above mentioned number of cases, the name of operation being the chief surgical condition for which the operation was performed. In the majority of these cases there were further operations performed at the same time, such as removal of the appendix, removal of varicose veins of the ovary, and a suspension operation, but my idea in giving the number of operative cases rather than the number of operations performed in detail is to determine the frequency with which operations on the female pelvis are likely to recur. By further analysis of these cases, I find there were 13 of these patients who had a total of 30 operations performed; in other words, 17 additional operations being performed on 13 of the 229 cases, which show a percentage of reoperative work of 13 out of 229, or 5.6 per cent. By a further look into the nature of the cases that were reoperated on, the primary operation was for some trouble with the tubes and ovaries, such as pus tubes, degenerated ovaries, displaced uteri, and Caesarean section (two cases), which goes to show the further interesting point in that the 13 cases upon which the 17 additional operations were reported were included in the 177 cases covered by suspension, ectopic pregnancy, Caesarean section, operations on the tubes and ovaries, for various indications, being a percentage of 13 operative cases in 160 patients, with 17 additional operations performed, or a 8.1 per cent of patients, and 17 additional operations out of the series of 177 operations, a percentage of 9.6 per cent. And now by a further study of our operative records, we note that in the hysterectomy cases, either supra-vaginal or complete, the removal of the tubes and ovaries was done in every instance, and the average age of the hysterectomy patient was 39, minimum age 16, and maximum age 66. These 65 patients upon whom there was done hysterectomy, together with removal of the tubes and ovaries, were operated on during the period from April 13, 1909, to June 3, 1924. Our follow-up records show there were nine deaths, of which number five occurred shortly after the operation; two from acute dilatation of the stomach; two from shock, and one from general peritonitis. The other four deaths occurred at periods ranging from one to several years following the operation; one from recurrent carcinoma, and three from influenza or some of its complications. This gives us a record, during the period specified above, of 56 hysterectomy cases in which the tubes and ovaries were removed, that are living to date and report that they are enjoying good health. With the exception of one case which was reoperated on twice following a hysterectomy to sever adhesions, our records show that none of these patients have had to call on us for further operative treatment since the complete operation was performed. The patient who was the single exception, has been enjoying the most perfect health since the last operation in 1913.

As the patients who had this operative work performed seem to be enjoying the most perfect health as a whole, are free of all nervous symptoms, and apparently are suffering no ill consequences of any kind, it brings the question forcibly to my mind, as I am sure it will to yours, to what extent can we accept the report above referred to from H. S. MacLean in 75 cases of the same type in which hysterooophorectomy was performed, when he frankly states there was some immediate improvement of a local nature but symptoms of a more distressing character soon began to develop? Certainly this has not been my experience—in fact, far from it.

Although I heartily condemn the indiscriminate removal of healthy tubes and ovaries, I am frank to bring the issue squarely before you, since the question of determining *when an ovary should be removed, or a tube, or a uterus*, when some one of the pelvic organs has become involved, is to my mind a far greater question than most of us realize. While the logic of our instructors seems to be almost conclusive from a theoretical stand-point, as shown above, it does not work out practically in the Alleghany mountains where I have been doing my work. The question squarely confronts us when we are dealing with diseased tubes and ovaries and uteri, to what extent should we subject our patients to the discomfort and uncertainty of relief and future health by patching up already diseased organs? Although a small part of these organs, as men-

tioned by Goldberg, may be apparently healthy at the time of the operation, the question for every surgeon to decide in a case of this kind is how long will they remain in good condition and the patient enjoy good health?

I trust I have not permitted the pendulum of conclusion to swing too far in the opposite direction to have an unfavorable influence on the minds of you gentlemen present, but I hope to bring forward for discussion the question: When should uteri, tubes and ovaries be removed, and when not? Also, what are the end results of removal, and whether or not we have overestimated the damage done by removal?

IDEAS IN SYPHILOLOGY.*

By T. LATANE DRISCOLL, M. D., Richmond, Va.
Associate in Syphilology, Medical College of Virginia.

I hesitate to give my ideas on an already overburdened subject, but it would seem that certain factors of a most disconcerting nature occurring in the routine practice of syphilology might be eliminated. Foremost, among these we might mention the Wassermann-fast case, so-called, and by this I assume a negativity of all things, palpably so, except blood. Before it is possible to scientifically advise a remedy, certain fundamental factors, as to etiology, must be taken into consideration. Concisely put, what causes a persistent positive Wassermann in such cases, or is there actually such an entity? First, we must concede in the light of voluminous work that a positive Wassermann is indicative of syphilis in the majority of instances, and its persistence, as in the Wassermann-fast case, is indicative of a syphilitic process, not simply a condition that must be tolerated or actually neglected. Is there such an entity? We believe not. On the contrary, we assert that it is a drug-fast, instead of blood-fast incident. As to the direct causes, it would seem by a study of case histories and the disappearance of clinical phenomena, and, under certain conditions, serology, the following factors enter into this: Persistence in treatment beyond a point at which tolerance has been established for well-known drugs, or else there is a process of drug administration that would tend ideally to develop tolerance.

Under certain circumstances, it would seem that after about eight or ten injections of arsphenamine the patient becomes tolerant, as evidenced by the slight if any clinical result had, and, if continued beyond this point, apparently little if any serologic results are to be noted. From directions, and in medical literature we often read of increase in dosage as the treatment proceeds. This, we believe, is the ideal method for developing a tolerant arsenic case. Certainly if the instructions were absolutely reversed it would be more nearly accurate. It is not my desire to limit this statement to arsenic, for to be included are mercury, iodides, bismuth, and other drugs, any of which may develop tolerance. It is eminently wrong, however, in thinking of a persistent positive Wassermann, to forget the possibility of a focus of infection, as it is common to have a blood become negative after a positive spinal fluid has been cleared up.

Primarily, this work was inspired by a patient who had been given ninety-two injections of arsphenamine at one of the clinics, and who serologically was positive for both blood and spinal fluid, with a rather definite psychosis manifested by constant depression, with occasional ideas of persecution, and many of the so-called neurasthenic symptoms. We suspected incipient paresis, yet found it difficult to explain how a patient with such an enormous amount of treatment, in spite of the fact that no focus of infection had been determined could present such a condition. Why does this patient respond to other treatment which is concededly not so potent as arsphenamine?

The following case suggested focal infection, as no one would likely suspect drug tolerance from the history: C. S. M., age 41, male; white, American, machinist. The chief complaint was melancholia. Had a venereal sore about fifteen years ago, when there was also a generalized rash and sore throat together with pain and stiffness in back and legs. The general appearance of the patient indicated undernourishment. There was also generalized lymphadenopathy. Examination of the nervous system showed that the left knee jerk was markedly reduced, while the right was slightly reduced. There were positive Romberg; Argyll-Robertson pupils, severe shooting pains in legs, and indefinite ataxic gait. Gastric crises occurred, and there was occasional diarrhea, which was apparently unexcited by food stuffs. Mentally the patient was markedly depressed.

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, at Staunton, October 14-17, 1924.

The serologic findings showed a positive Wassermann, both for spinal fluid and blood. The diagnosis was syphilis with a neuro-involvement which presented the symptom-complex of tabes dorsalis. Treatment up to the time the patient was referred to me by Dr. J. W. H., included eleven injections of neo-arsphenamine and fifteen injections of trepol. Blood and spinal fluid both gave a positive Wassermann at that time. After giving the patient six intraspinal treatments which I began on June 17th, the spinal fluid and blood were examined and proved negative.

The next case showed an enormous tolerance for arsenic: C., age 26, male, white, Italian, street car conductor. The chief complaint was "nervousness." Has had a venereal sore for the past five years. No history of a generalized rash, although there has been a generalized lymphadenopathy. Appearance indicates the patient has been fairly well nourished. Nervous system, reflexes slightly increased. Patient is very restless, and at times very much depressed, fancies he has no friends, and that the doctors will not get him well. The company has it in for him. Can't sleep, everything wrong, and nothing very definite. Serologic findings—positive blood and spinal fluid. Diagnosis—syphilis with a neuro-involvement and symptom-complex of paresis. During treatment for a period of about three years, patient was given seventy-two injections of arsphenamine in a Boston clinic. In our clinic at the Medical College of Virginia, he was given twenty, making a total of ninety-two injections of arsphenamine. At that time he was unimproved. Patient was then given sodium iodide and mercurosal twice weekly for about two months, and bismuth for one month, at which time he had a negative blood Wassermann. He showed marked improvement mentally and physically, and was able to resume work. Patient lost sight of.

The following case seemingly acquired a tolerance for arsenic by increasing the dose too gradually, beginning with a very small amount of drug. This case was worked out with this in mind, and proved to be most embarrassing because of the difficulty encountered in actually causing a disappearance of the lesion: R. T., age 28, male, white, American. Insurance business. Chief complaint—ulcer on penis in sulcus extending over corona to glans. Treponema demonstrated with dark fluid. No secondary rash or systemic manifestation other than enlarged inguinal glands. In treatment of this patient, he was first given five centigrams of arsphenamine. The following day there was apparently some change in chancre, and it seemed to be much dryer, and more friable with no discomfort. One week later the chancre was almost double size. One decigram of arsphenamine was then given. Three days following, lesion was much better, there being a lessened induration and distinct healing. One week later the patient was given one decigram of arsphenamine. No apparent effect on chancre. The following week three decigrams were given with, to my surprise, a rapid extension of lesion. Three days later four decigrams of arsphenamine were administered with slight if any results. One week from that date six decigrams were given, the lesion showing a tendency to heal. Following that, at a time when the patient was becoming anxious about his condition, the tartro-bismuthate of sodium and potassium was administered in one decigram doeses for four injections, a smooth cicatrix resulting.

Conclusions.

Basing my deductions on the study of three hundred syphilitics, it would seem that a Wassermann-fast blood is in reality a drug-fast condition. The means of preventing this is to limit the amount of any single drug given.

In the administration of arsphenamine, which is our most active treponemicidal agent, a maximum dose should be the initial dose, due consideration, of course, being given conditions constituting contraindications.

And, finally, the cerebrospinal system should be looked upon at all times as being potentially a focus of infection.

406 *Medical Arts Building.*

SYPHILIS—A PREVENTABLE INFECTION.*

By DUDLEY C. SMITH, B. S., M. D., University, Va.
Assistant Professor, Dermatology and Syphilology, University of Virginia.

When workers in preventive medicine begin the task of eradicating a disease they ask the clinician and scientific investigator for certain information. They need to know: First, the cause of the disease; second, if an infection, how the causative agent is transmitted; third, accurate methods for early diagnosis; and

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, at Staunton, October 14-17, 1924.

fourth, efficient therapeutic procedures. When this information is given, they feel confident that the disease can be successfully combated.

It is a striking thing in the history of medicine that all the above facts in regard to syphilis have been known for more than a decade, yet the disease seems to be almost as prevalent as before. The only conclusion it is possible to reach, then, is that these facts have not been generally applied.

The cause of syphilis is the treponema pallida. It is communicable by direct contact with an infected person or object. Clinical acumen, darkfield examinations, and Wassermann tests make early diagnosis possible. Administration of available anti-syphilitic drugs quickly makes the infected person noninfectious; and if administration is prolonged sufficiently the vast majority of those infected, who are likely to transmit the disease, are cured.

The apparent failure to control this malady is ascribed to its sexual aspects. It is more difficult to control an infection transmitted directly from person to person, than one transmitted by an intermediate host, especially when there is added a moral question. For this reason prevention of venereal diseases presents difficulties, but with the knowledge at hand syphilis can be eradicated. It is not essential that the peoples' sexual habits be changed; however, the task can be made easier by improving the sexual standards of the population. A person who does not harbor living treponema pallida cannot transmit the organism to a second person.

The prevalence of syphilis and its serious consequences justify urgent and efficacious preventive measures. Syphilis is one of the largest problems in public health work. The incidence of syphilis varies in the different groups of the population, the estimate, based on Wassermann surveys, varies from five per cent in young apparently healthy adults to fifty per cent in prostitutes. It is conservatively estimated that eight per cent of the population in this country are infected; that is, there are about two hundred thousand syphilitics in Virginia. Stokes speaks of syphilis as the Third Great Plague. Hazen estimates that the total economic loss in this country due to syphilis is half a billion dollars a year. On a basis of population, Virginia's share of this is ten million dollars annually. This includes loss of time from occupation, money spent by infected individuals and amount invested in institutions for the handling of those made invalid in mind or body by this malady. The price paid in mental agony is inestimable.

Heretofore, medicine in its combat with syphilis has followed a defensive policy. It is now time that the strategy be changed; instead of awaiting an attack, a vigorous offensive should be begun. Sir David Bruce's remark concerning preventive medicine in general is especially appropriate here. "Instead of remaining quietly in the dressing stations and field hospitals waiting for the wounded to pour in, the scientific services must be well forward in the enemy's country, destroying lines of communication, aerodromes, munition factories, and poison gas centers, so that the main body of the army may march forward in safety."

No attempt will be made here to offer a complete program for the eradication of this disease. A general outline with a few special remarks will suffice. In brief the problem is summed up as follows: (1) Finding all those infected; (2) making them noninfectious, and (3) instructing the well how to prevent infection.

An awakening of public opinion is primarily and essentially necessary. One of the main factors in overcoming yellow fever, smallpox, typhoid fever, and certain other diseases has been the widespread knowledge in regard to them. When any disease receives universal publicity it loses much of its ability to spread. When a population learns what causes a disease, how it is spread, and something about combating it, the disease then becomes less prevalent or in certain instances extremely rare.

Because of the facts—namely, that syphilis is usually transmitted by sexual contact, oftenest by immoral conduct; is looked on more as an indecency than as a disease; and conversation in regard to it is tabooed—it has been difficult to enlighten the public. One of the few good things that came out of the World War was increased publicity concerning venereal diseases. The laity should be taught to think of syphilis as a disease just as pneumonia is a disease, and to talk plain matter-of-fact English about it. Nothing has done so much for the campaign against tuberculosis as the unloosing of tongues. The facts in regard to

syphilis can be made to appeal to men and women as worthy of their serious attention. They should be taught something about the history, prevalence, etiology, clinical course, diagnosis, prophylaxis, and treatment. The teaching can be done through all the numerous channels of individual and public instruction. Some of the channels are homes, schools, churches, public addresses, moving pictures, and radio, pamphlets, and newspapers.

With the background of an enlightened public it can be recommended that every member of every household have a routine health examination including a Wassermann test. Physicians should do a Wassermann on every patient they see; this is especially indicated in urological, obstetrical, neurological, dermatological, orthopedic, and circulatory cases. In hospital practice it is surprising how many unexpected cases of syphilis are picked up by the routine Wassermann test. In this way a large percentage of chronic cases will be located. At present the acute infectious are detected fairly early, but better training of all physicians will hasten the diagnosis.

Since a large percentage of all infections are transmitted by professional and clandestine prostitutes every effort should be made to locate them.

After locating the infected individual the next step from public health standpoint is to make him noninfectious. This is accomplished by early vigorous treatment and voluntary isolation in most cases, forced isolation in others.

Because of the enormousness of the task of finding and treating all syphilitics, complete eradication will not be readily accomplished and every available means of preventing new infections should be employed. It is readily admitted by everyone that high moral standards should be encouraged. Improving the mind, character, body, and environment of each member of society will raise the moral standard. This sociological phase of evolution is a slow process. Under present conditions it seems that from a scientific standpoint it should become general information that there is an efficient prophylaxis for syphilis if it is used soon after exposure.

The problem of treating all those infected so that they are made noninfectious, as well as to restore them to normal, presents several difficulties. It would be an impossible task for public institutions and syphilolographers to undertake. Besides a large number of those found to be infected would not visit either of these. The treatment must then be done by all those practicing medicine. An essential is for all physicians to equip and train themselves to treat syphilis properly. It would require only a short course of instruction to teach the average physician the proper technique. Research in connection with the substances used in treatment, has simplified the administration until the difficulties and dangers are minimal. A specific recommendation is that short intensive courses in syphilology be given in each county of the state.

SUMMARY.

The cause of syphilis is known; its methods of transmission have been determined; accurate diagnostic methods are in use; and efficient prophylactic and therapeutic measures are available. Widespread use of this knowledge will diminish the incidence of syphilis, and in time will make it a rare disease.

NEURO-VASCULAR SYPHILIS.
A Case Report With Remarks.*

By THOMAS W. MURRELL, M. D., Richmond, Va.

In the fall of 1921, Mr. Blank, age fifty-six, mechanical engineer by profession, found that he was losing weight. He noticed, at the same time, a slight impairment in his efficiency, which he attributed to overwork. His normal weight being one hundred and fifty, he, at this time, weighed one hundred and thirty-five. In November of this year, he laid down one afternoon for a nap and waking, was astonished to find he had lost his voice. His voice, which was normally a deep and resonant bass, was now a husky whisper. Feeling that this was due to a cold and nothing serious, he did not seek treatment.

Shortly after, while dining in a restaurant, he was seized with a violent fit of coughing and, turning to one side, leaning over in an effort to control it, he lost consciousness; falling to the floor, he struck his head, causing a slight gash on his forehead. He was taken to a local hospital and remained there for several days. The routine examinations, made at the hospital, revealed a four plus Wassermann. He was advised to return home, and referred to me for treatment.

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

When I first saw him, he was in good spirits and feeling well, the only disturbing factor being loss of voice. Before instituting treatment, I asked Dr. John Dunn to make an examination of the larynx. He reported about as follows: The entire right vocal cord was completely paralyzed, the left side being unaffected. From his examination, Dr. Dunn felt that the syphilitic deposits, causing the paralysis, were on the nerves at their exit from the skull, since there was no evidence of meningeal irritation, or of choked disc.

The patient was started on neo-arsphenimine, six decigramme doses, and sixteen treatments were given at weekly intervals. Improvement commenced when we were half through this. He was then put on sodium iodide, two grammes intravenously, every other day, until twenty doses were given. At the completion of this course, his voice was about two-thirds returned, and he was again examined by Dr. Dunn. Dr. Dunn reported that the right vocal cord was still paralyzed but that the gap had been largely closed by the left cord coming over and that he found a most satisfactory result had been obtained, but doubted whether further specific treatment would be helpful.

My patient, being a man of excellent intelligence, I at all times discussed the case with him, and advised that since there was not the slightest evidence of harmful action from the drug, and the possible chance of good, I would retrace the course of treatments. His agreeing to this, an intermediate course of mercury and potassium iodide was given for one month, when we started again with neo-arsphenimine, giving sixteen treatments and repeating the sodium iodide for ten treatments. This brought us up to April 26th, 1923. Two weeks later a spinal puncture was done and, on receiving a negative report of the examination of spinal fluid, his blood Wassermann, having been negative for over a year, and his voice now returned to normal, the case was discharged as cured on this date.

On the first day of April, 1924, eleven months later, Mr. Blank came in my office in a great deal of distress; his left arm was oedematous, including his shoulder and left side of chest; the upper left thorax was marked by distended veins, and the oedema of the left hand was so great as to prevent his closing it; the whole picture being one of obstructed venous return of the left arm.

Dr. A. G. Brown was immediately called in. By palpation, he outlined a mass in the chest, but by auscultation could not detect a brue. He advised X-ray, which was done by Dr. Fred M. Hodges. Dr. Hodges reported as follows: (April 2, 1924).

"I fluoroscoped this man first and, finding what I took to be an aneurysm of the aorta, made plates of the chest only. The lungs are clear, the heart is markedly enlarged, the entire aortic shadow is widened, and there is in the area of the descending arch a large mass which pulsates, and which appears to be part of the aorta. I believe that this is an aneurysm. It is possible that this could be a malignant growth in a patient who has a dilated aorta, but I do not think so."

A Wassermann taken at this time was negative and the patient was put in the hospital with absolute rest. After one week of this, the administration of neo-arsphenimine was again instituted, giving small doses at first, and in two weeks getting up to six decigramme doses. After eight treatments, the patient felt much better and seemed normal, so Dr. Hodges was asked to take a second X-ray, which he did on May 24th, 1924, nearly eight weeks later. Dr. Hodges reported as follows:

"At this time the shadows noted in the mediastinal space have practically disappeared, and I feel sure that all that he has is a diffuse aneurysmal dilatation of the aorta with almost a sacculation at the point of the descending arch just at the left of the sternum. I feel that this condition has certainly improved, and that there is no other pathology present."

On May 25th, an X-ray treatment was given to his hands for what was apparently an eczema, which had developed in the last month or two. This eczema was typical, occurring on the dorsal surface of the fingers, and was helped by the X-ray treatment. We went forward with the treatment, giving eight more neo-arsphenimine. We had now arrived at the point where we were two years ago. Should treatment be continued since it was apparently harmless, and so much good was being obtained, or should we rest? The patient stated that he was feeling better all the time, and it was decided because of this to go ahead.

After three treatments, however, his hands, which were typically eczematous, became inflamed and apparently changed to that of a dermatitis. This spread rather rapidly up the

arm and the left side of the face became involved. I then awoke to the fact that I was confronted with an exudative erythema type of dermatitis due to arsenic.

Immediate treatment with intravenous injections of sodium thiosulphate was started, the first dose being given on August 9th. The condition, however, spreading so rapidly, the patient became alarmed, and desiring consultation, was taken to Dr. John A. Kolmer, of Philadelphia. Dr. Kolmer gave him four treatments of thiosinamine and reported on August 15th:

"No more new lesions are developing and the old ones are beginning to dry and disappear. I know that you will be very much relieved to hear of the outcome and I believe that Mr. Blank has had a rather close call."

The patient returned to Richmond on August 19th. One week later there was a relapse of his condition and not having thiosinamine, the thiosulphate was started again and from August 26th to September 27th he received twelve doses of thiosulphate. By this time, the lesions had all disappeared as inflammatory areas, leaving a few hyperkeratotic spots and a slight itching. In every other way, the patient seems entirely well.

Remarks.

We will consider this from three phases:

Nerve Involvement: It is, of course, debatable whether the repetition of the treatment, after Dr. Dunn saw him the second time, was necessary to produce the excellent result obtained in voice restoration. It is a fact that improvement was continuous during this period, and complete restoration not affected until the second course of treatment was completed. It is interesting to know that such paralysis could take place from extra-cranial involvement, since all examinations, including spinal puncture, did not show any central nervous system involvement.

It is also possible that this paralysis was due to the interference with the nerves by the mass in the chest. It is hard to understand, if this be so, why such a long treatment was ineffective with a condition which had not developed to the point of causing local symptoms, while later on one-fourth of the amount of treatment was sufficient to control it when the chest condition had reached a climax.

Vascular Involvement: The patient states that for many years he has had no pulse in his right arm, and it was always a little joke with him, in years gone by, if sick and consulting a physician, to give him this right arm to count the pulse. The only possible time of infection from local evidence was ten years previous to his first visit, and the absence of pulse in the right arm had been noted many years before this.

Of course, the first consideration here is the question whether the mass in the chest was an aneurysm or not. If it was not an aneurysm, it must have been a gumma. It is most unusual for a gumma of this size to develop one year after an unusually intensive treatment, and with a negative Wassermann. In addition, the patient's work at this time was such as to promote the occurrence of the aneurysm. He was now fifty-eight years of age, and undertook some work which would have been exceedingly strenuous for a young man in normal health. If there was an aneurysmal dilatation, did rest restore him, or did the specific treatment do the work? These questions are to be answered by the internist. The facts are as stated.

Skin Involvement: In past years I have seen, and am fully acquainted with, the pigmentation of the skin and the hyperkeratosis due to the prolonged administration of arsenic. In the several thousand arsphenimine administrations seen in private and dispensary work, I have also become familiar with the different reactions of the drug. The cases of exudative erythema have always come on after a few injections of the drug, and are due to the chemical combinations, which we term arsphenimine.

This reaction was arsenical dermatitis. In three years' time this man had received fifty injections of neo-arsphenimine, and the condition must have resulted from a reduction of the drug in the body and the storing up of the arsenic in the tissues. I can assert with assurance that the original condition of the fingers was an eczema, since it was typical in appearance and yielded to treatment for this condition. If this be so, then it is true that arsenic dermatitis can be grafted upon, or started from an eczema, and that a patient with an eczema who is under prolonged syphilitic treatment, should be watched from this angle.

17 *East Grace Street.*

RADIUM THERAPY IN UTERINE HEMORRHAGE.*

By J. MOREHEAD EMMETT, M. D., Clifton Forge, Va.

The use of radium in uterine hemorrhage is an established treatment. The division of opinion now lies in the proper selection of cases. While radium has robbed surgery of many possibilities, it has not yet removed the question of uterine hemorrhage from the domain of operative gynecology. When the proper care is exercised in the study of such patients, we will find many cases who will best be treated with radium. On the other hand, there will be observed a group which are best handled surgically.

From the experience gained in our own clinic, we are impressed with the necessity of a department of radium therapy, since we feel that radium is essential in the treatment of gynecological patients. In reviewing our case records since we have had radium, we cannot fail to wonder if we might have expected the same success from surgery as we have had in our group of patients treated with radium. A large percentage of the group of patients whom we have radiated, had they come to us a few years ago, would undoubtedly have been operated upon, and the operation which we might have performed would have been associated with an appreciable mortality.

The information available for general study in radium therapy is originating principally from the large institutions having a gram or more of radium element. Generally these institutions are collecting their own emanation and the element is infrequently used. Records of this kind are invaluable, and it is from the study of such records that we are able to arrive at conclusions as to the value of radium in certain diseases. We have found, however, that it is a difficult matter for those of us having fifty to one hundred milligrams of radium available to make applicable to ourselves the problems of the larger institutions. It is with the hope that the study of our own cases, who have been treated with a very modest amount of radium, may prove of value to men of like equipment that we are prompted to discuss these problems.

It seems to us that radium in a limited amount could be available to doctors or groups of doctors handling general surgical patronage. Patients are fast requiring such information that enables them to choose, in a manner, their own treatment. Radiation is not an unpleasant experience; it is rarely associated with postoperative discomfort, and it carries with it, relatively, no mortality. The average hospital days are markedly diminished as compared with the hospital days following a major surgical operation. Such inducements frequently prove factors in patients' choice of institutions.

The department of radium therapy can be established in any small institution without in any manner detracting from the other departments. It does not require a great deal of time and energy for some member of the staff to so familiarize himself with radium as to be able to administer it intelligently. I am glad further to say that such a department can be maintained and made to be self-supporting.

Our series has covered a study of sixty uterine cases treated with radium. We established our department of radium therapy two years ago. We have at our disposal sixty-six milligrams of radium. We have divided our patients into three groups of cases. First: The so-called myopathic, idiopathic, or essential forms of uterine hemorrhage patients. Of this type of patient we have treated thirteen. Second: Uterine fibromata or myomata. Of this type of patient we have treated forty. The tumors in this group have varied in size from those that were just palpable to others that were as large as a good-sized grape fruit. Third: Advanced inoperable cancers. Of this type of patient we have treated seven. In six of this group of patients the lesion has been found to have originated primarily in the cervix. In the seventh case there was a large carcinoma arising primarily from the fundus of the uterus.

There can be little doubt as to the advisability and efficacy of radium therapy in the treatment of the idiopathic types of hemorrhage occurring in women around the menopause. It is here that radium has proven nearly a specific. It is well within my memory that, when patients approaching the change of life came to a surgeon for treatment, the patient was advised to try symptomatic remedies. When such treatment failed to control the hemorrhage, this class of patient was generally

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, at Staunton, October 14-17, 1924.

advised to undergo an operation, usually for the removal of the uterus. Now, of course, when this type of patient is radiated with a sufficient amount of radium required to control the hemorrhage, there is produced a permanent menopause. In our small group of cases, we have not observed any unusually severe or foreign manifestations associated with this type of artificial menopause. Our opinion as to this observation is borne out by observers who have studied large groups of such patients. Twelve of our thirteen patients, who have been treated for idiopathic hemorrhage, have experienced immediate and permanent relief. The only patient who did not improve had, prior to her radium treatment, been subjected to several pelvic operations, the final one occurring about one year before we saw her, and culminating in the removal of both tubes and ovaries. The hemorrhage in this patient became so severe as to produce a profound secondary anemia, which necessitated transfusions and, finally, the removal of her uterus.

Radium in her case seemed absolutely worthless. Pathological studies of her uterus did not reveal anything except a general fibrosis with an extreme hyperplasia of her endometrium. Our average radiation in the iodiopathic case, approaching menopause, has been seven hundred and fifty milligram hours. It may be interesting to observe that the average hospital days of this group of patients has been only six. None of these patients has had complications other than a varying radium nausea, which has always been relieved when the radium has been withdrawn. In addition to eleven cases occurring in women approaching menopause, we have treated two young, unmarried women for extensive uterine hemorrhage, in whom we were unable to demonstrate any cause for their dyscrasia. Both of these patients were free of other pelvic disease or anomalies. Styptics, serums, and ductless gland extracts were used upon both of them without appreciable results. Finally, each of these young women was radiated with twenty-five milligrams of radium for six hours. One of them developed an amenorrhea which lasted for six months, and the other did not menstruate for three months. Both of these patients now, however, are menstruating normally without any evidence of menorrhagia. We realize that radium, in this class of patient, is not yet an established treatment.

In our group of fibromata or myomata cases we have treated forty patients. The average age has been forty-one years. The oldest was sixty-two and the youngest was twenty-six. We have radiated five women for uterine fibromata under thirty-five years of age. In each of these patients there has been some specific reason why radium was selected in preference to surgery, and, in each of them, we have directed our attention towards the control of the uterine hemorrhage and no effort has been made to obtain a shrinkage in the size of the tumors. We agree with the vast majority of observers that radium is not the treatment of choice in young women with fibroids of the uterus. The normal function of the pelvic organs can be conserved more adequately with surgery. It is interesting to observe that two of our five young women, who came to us suffering from uterine hemorrhage, caused by uterine fibroids, and who were radiated, have since become pregnant. One of these women was later delivered of a normal baby. The other patient was delivered at term, but her baby was dead. All this group of younger women were radiated with fifty milligrams of radium for six hours. The longest period of amenorrhea following their treatment was five months. In none of this group of patients was there produced any evidence of an artificial menopause. In our older patients with uterine fibroids no effort has been made to conserve the menstrual cycle. Our attention in this group of thirty-five patients has been directed towards control of the hemorrhage and shrinkage of the fibroid uterus. The radiation in the older patients has varied from eighteen hundred to three thousand milligram hours. Generally these patients have been radiated twice—two of our earlier patients had three radium applications. One of our fibroid cases developed a pelvic cellulitis on the third day after radiation and it later became necessary to drain for a cul-de-sac abscess. This patient probably had a latent infection in her pelvis, although her physical examination and history in no manner suggested such a disease. We feel that radium in her case, however, stirred up such an infection. Twenty-eight of the group of older women came to us primarily because of uterine hemorrhage. The remaining seven patients had palpable tumors, but were not suffering from hemorrhage. In the twenty-eight patients who had hemorrhages

caused by fibroids, radium has acted as a real specific—each patient being completely relieved and no recurrences have been reported to us to date. Three of them, however, have been recent cases and it is hardly fair to class them as being completely controlled, inasmuch as sufficient time has not yet elapsed since their treatment. The amount of shrinkage of the fibroid growths is a very difficult matter to determine. We have recognized our enthusiasm in this matter and an effort has been made to be as accurate as possible. I think that a 65 per cent decrease in size would not be erroneous. The average hospital days in our fibroid cases has been eight.

During the time of the accumulation of this group of patients we have operated upon fourteen women for uterine fibroids. Some of them had pedunculated tumors; three had very large tumors, and others were operated upon because of evident pelvic infection associated with their uterine disturbances. Two of the operated patients, we feel, should have been radiated, but both patients had been advised of bad results following radium treatment, and they preferred surgery. Of the operated fibroid cases, nine patients had hysterectomies and five had myomectomies. The average hospital days of our group of operated patients has been sixteen.

Our third group of cases is made up of seven carcinoma patients. All of our cancer cases have been advanced, definitely inoperable lesions. They have been types of cases that a few years ago, had they approached us for treatment, we would have advised them there was no treatment, of which we knew, that would be beneficial to them. We would have further advised them to go to their homes and make the necessary preparations to die. Six of our cancer patients have had their initial lesion in the cervix. The remaining one was suffering from a large, infiltrating cancer of her fundus. None of our cancer patients has been treated over a sufficiently long period to establish any opinion as to the final termination of their disease. We have two patients, however, who received their radiation more than fifteen months ago. Both of them have been recently examined and there is absolutely no local evidence of cancer present at this time. Both of these patients had malignant infiltration into their bladder and rectum when they were treated. They have gained weight, and are enjoying normal health. Two of our carcinoma patients died soon after radiation and were afforded no appreciable improvement as a result of their treatment. One patient, who received four thousand milligram hours of radium, showed marked local improvement, but died four months later from what was supposed to be an extensive recurrence in her liver. The two remaining patients in this group of cases have received their treatment within the last five months and the bleeding in both cases has been completely controlled. One of them has been recently examined and appears markedly improved. The other patient has not been recently heard from. We realize that the results in our cancer patients have been in no manner inspiring, but certainly they have been afforded relief, which could not have been offered them before the advent of radium. The only very impressive thing that has occurred in all of our cancer patients has been the immediate control of their hemorrhage and the decided improvement in their offensive uterine discharge. The gross and microscopic appearances of the malignancy in our cancer patients have been decidedly similar and we are totally unable to explain why one case has gotten miraculous benefits and another has followed the usual course without appreciable change until death. The studies of our pathological reports have not afforded us any information as to why radium has benefited one patient and has proven absolutely inert in another.

We feel convinced, from the study of our own small group of patients, that radium has established itself as a valuable adjunct to surgery in the treatment of uterine hemorrhage in every group of case. We are aware, however, that radium, indiscriminately used, may readily injure its own reputation and establish for itself much distaste in the regular medical profession. We would urge that, before any patient is treated with radium, she be carefully and rigidly examined, and the choice of treatment in the individual case be considered. It would seem that the greatest doubt in the minds of the profession today, concerning radium in the treatment of uterine hemorrhage, is the question of its advisability in the treatment of young women. There are a number of authorities who feel that radium, advisedly used, may accomplish much in this group of patients without destroying permanently ovarian function. It is belived by Clark and

others that more radium is required for the permanent destruction of ovarian function in young women than upon the ovaries of older individuals. Dr. Clark believes that twenty-five milligrams of radium may be used from four to six hours in young women with absolute safety. In regard to the manner in which radium produces its effect, he believes that the rays exert an influence upon the endometrium, as well as upon the ovaries. It has been demonstrated that radium, in sufficiently large doses, will destroy the Graafian follicles. This has been shown by an examination of ovaries which were removed following radium treatment. The extent of the destruction of the follicles depends upon the size and time of dosage, and also upon the age of the patient. Frequently, the temporary amenorrhea is caused by the destruction of the ripe Graafian follicles, which are situated near the surface of the ovary. As the primordial follicles develop from the center of the ovaries and migrate to the surface to form Graafian follicles, menstruation is re-established. Radium therapy has not reached the stage of development, and the uniformity of dosage is not sufficiently worked out, for us yet to accept it as a universal treatment in the menorrhagias of young women. However, when it is remembered how little we are able to accomplish by ductless gland therapy, animal serums, various styptics, and curettage, we must recognize that there is a field for the correction of this disease in young patients, when we are unable to establish a cause for the menorrhagia.

Werner believes that pregnancy can occur after X-ray and radium treatment of the dosages in vogue, even when the stage of amenorrhea has been acquired, and he states that no special danger need be anticipated in the course of the pregnancy, nor in labor, in these patients. He has found, however, that there is a definite tendency in radiated patients to abort. The group of babies which he has studied have appeared normal at birth, but their development, he thinks, has been somewhat retarded.

Dr. John Osborn Polak has tabulated some interesting reasons for and arguments against the use of radium in the treatment of uterine myomata. First: In radium there is no operative mortality, inasmuch as these patients can usually be treated without an anæsthetic. Second: Should radium fail, operation is always possible. Third: He believes that, in the production of an artificial menopause, the menopausal symptoms are not so severe. Fourth: The intramural tumors show absolute cessation in hemorrhage and the shrinkage is very appreciable. Fifth: Radium is valuable in the treatment of these patients, who have complicated constitutional disease, such as heart disease, extreme anemia, diabetes, and nephritis, and who would be poor operative risks. His objections are: First: In a moderate percentage of fibroid cases, there is a complicated malignancy present and, although careful curettage is done before operation, it is very possible not to remove a part of the malignant degenerative process. Second: More than fifty per cent of his operations in fibroid cases have been associated with intrapelvic lesions of the tubo-ovarian type. Third: Radiation, when given in sufficient dosage to check hemorrhage and to shrink the tumors, will impair the reproductive functions in young women. Fourth: It is a recognized fact that the shrinkage in a fibroid from radium is very slow and frequently in these patients there is an immediate demand for relief of the pressure symptoms. Fifth: The immediate effects of radium is the production of edema and excitation of a general inflammatory reaction. Sixth: Radiation will increase the necrosis in tumors which are already necrotic and, by added acidosis, increase the toxemia of the patient. Whereas, these approvals and objections are well grounded, we must still recognize that radium, in selected cases is invaluable in the treatment of patients suffering from uterine myomata occurring in women around the menopause. Of course, diligent care must be exercised in an effort to determine whether these patients have associated pedunculated fibroids or intrapelvic inflammation.

Radium in the treatment of uterine cancer has been largely used in the inoperable cases. Little has been expected from its application and no great disappointment has been felt when results have not been obtained. Prior to the advent of radium, little or nothing has been offered the inoperable uterine cancer patient. Radium, however, will control the hemorrhage, abate the symptoms, and often prolong life. Each year there are being reported a number of advanced cancer patients who have been treated with radium and who have gotten marvelous benefits. Some of them are well now, after a period of five or six years.

Comparison of the results of surgery and radium in the treatment of cancer of the uterus is interestingly observed by Dr. Rex Duncan. He tabulated the results of six thousand cases reported by surgeons of this country and Europe. His studies show that, in one hundred patients presenting themselves for surgical treatment today, sixty must be turned away without treatment. Of the forty who are operated upon, 18 per cent or seven die as a result of the operation. Eight patients will be cured and the remaining twenty-five will have recurrences. The sixty who are turned away, the seven who die from operation, and the twenty-five who have recurrences, leave only eight who are cured. Ninety-two out of each one hundred patients are doomed, unless some method, other than surgery, comes to their relief. He has gathered three hundred cancer patients, who were treated with radium more than two years ago. There are one hundred and twenty-two who are living, or 40 per cent who are clinically well over periods varying from one to seven years. Of these, ninety-nine, or 36 per cent have remained clinically well. I recognize that we are hardly ready to accept, as authentic, the fact that radium offers greater advantages to our cancer patients than surgery. However, when any group of records is reviewed, we can readily see how totally inadequate surgery is to meet the general demands for the permanent cure of cancer of the uterus.

Bibliography.

John Clark: "Treatment of Inoperable Cervical Cancer," *Amer. Jour. of Med. Sciences*, April, 1922.

Werner: "Influence of Deep Radium and X-Ray Treatment on the Process of Reproduction," *Amer. Jour. of Obs. and Gyn.*, September, 1922.

John Osborn Polak: "Notes on the Clinical Value of Radium in the Management of Uterine Hemorrhage," *Medical Record*, March 25, 1922, Vol. 101, No. 12.

Rex Duncan: "Treatment of Uterine Cancer," Abstracted in the *Journal of Radiology*, February, 1923.

X-RAY EXAMINATION OF THE URINARY TRACT.*

By JOSEPH T. McKINNEY, M. D., Roanoke, Va.

During the past two decades probably more progress and development has been made in the study and diagnosis of diseases of the urinary tract than in any other branch of medicine. The combined work and efforts of the urologist and radiologist have been the means of bringing about an accuracy and refinement in diagnosis hitherto impossible, resulting thereby in greatly improved methods of treatment. No two specialties in medicine require a closer correlation of work, and here a word in regard to the co-operation of the general practitioner would not be amiss. It is he upon whom rests the responsibility of first sifting out the evidence and deciding whether a certain line of symptoms demand urological investigation. The surgeon and internist are also daily confronted with the same problem.

The roentgenologist is often asked what information can be obtained by an X-ray exami-

Fig. 1.—Case 1. Large renal calculus removed from pelvis of right kidney by Dr. Gale, Aug. 30, 1924, all symptoms at first simulating acute appendicitis.

nation of the urinary tract. In the early years of the work, the radiologist could only determine the possible presence or abscence of calculus, and the approximate size and position of the kidney. But with the advent of pyelography, first used by Von Lichtenberg in 1906, and later developed to its present high degree of efficiency in this country by Braasch and others, a large and increasing number of pathological conditions are able to be determined.

Time will permit of only a brief survey of this work. First, in all cases of suspected urological conditions, a preliminary examination of both kidneys, ureter and bladder should be made. The patient should be given a mild cathartic the night before, an enema in the morning, and allowed no breakfast.

*Read at the meeting of the Southwestern Virginia Medical Society, at Marion, September 12, 1924.

After the preliminary ray the patient should be sent to the urologist for cystoscopy, followed by catheterization of the ureters, and further studies as the individual case demands. In the event any suspicious shadows are seen, opaque catheters should be passed in the ureters, then X-ray examination again made, followed by a pyelogram or ureterogram as indicated. As is well known a negative report does not in itself rule out a calculus. The uric acid calculus does not cast shadows upon the X-ray film. Fortunately, though, they are seen much less frequently than the phosphatic or calcium types. They are usually small, not well organized, and are often passed. To mention only a few of the many things that may simulate renal and ureteral calulus will give you some idea of the difficulties encountered: foreign bodies in the intestinal tract, convolutions of the intestines, calcified glands, fecoliths, phleboliths, gall-stones, and calcifications in the muscles, pigmented moles, and the presence of shadows afterwards found associated with double ureter or double pelvis of the kidney.

Fig. 2.—Pyelogram, Case 1, showing renal calculus completely surrounded by injecting solution, with slight stricture of ureter below uretero-pelvic junction.

Fig. 3.—Case 2. Pyelogram showing extra-renal shadow, probably tuberculous calcification in the soft tissues.

I should like to mention a condition first called to my attention by Dr. Cary, that of well organized blood clots, cells and detritus encountered in the ureter, and giving all the cardinal symptoms of a calculus. Here a catheterization of the ureter and irrigation of the pelvis gives marked relief.

The tube shift method, by making a double exposure on one plate, is frequently a great help after catheters are inserted in diagnosing the presence or absence of calculus. The use of the Bucky Diaphragm and double screens have made the technical work of the radiologist much more efficient. Many solutions have been used for pyelography, but for the past year we have been using a 12 per cent aqueous solution of sodium iodide, which has proved to be by far the least toxic and freer from reactions of any solution yet found. The gravity method of injection is the method of choice, and never under any circumstances should both kidneys be injected at the same time. Mild pain during the injection should be the signal for discontinuing the injection.

Fig. 4.—Case 3. Referred by Drs. J. W. Preston and W. W. Butler. Calculus right kidney.

From a pyelogram or cystogram we can determine with fair accuracy the following conditions: a normal pelvis, hydronephrosis, strictures of the ureter, tumors of the kidney and bladder, mono- and polycystic kidneys, pyonephrosis, and malformations of the kidney. The pyelogram probably offers the only method

whereby early hydronephrosis can be diagnosed, which condition may be caused by tumors, mechanical obstruction and infection. The injected kidney shows a wide variety of shapes, but mainly a broadening, and at times obliteration of the calyces, increase in size of the pelves, change in the angle of the ureter,

Fig. 5.—Case 3. Pyelogram showing double pelvis of right kidney, the calculus noted in Fig. 4 being surrounded by iodide solution, and located in the inferior or lower pelvis.

with a definite blunting and flattening out of the terminal projections of the minor calyces, all or parts of which may be seen in hydronephrosis, tumors and similar conditions.

In passing it is well to mention that only a few cases of floating kidneys are accompanied by hydronephrosis, and that you may have a marked hydronephrosis without symptoms.

Fig. 6.—Case 4. Ureteral Calculus.

The movable kidney, even if the ureter showed angulation, should not be operated upon unless a definite mechanical dilatation of the pelvis and ureter was found.

I wish especially to call attention to the broad class of patients suffering from chronic gastro-intestitnal disturbances, indigestion, nausea, vomiting, flatulence, diarrhoea, associated with pain on the right and left sides of the abdomen, and in the lumbar regions, who have been treated for the above various symptoms, without obtaining relief, and want to urge that before operative procedures are advised, a complete study of the urinary tract be made.

To quote from a recent paper by Dr. C. H. Mayo, read at the meeting of the A. M. A. in June, 1924: "The appendix may be involved in pelvic inflammation and its resistance lowered. The former is also true of its relation to the right ureter; an inflamed appendix adherent to the peritoneum over the right ureter at the brim of the pelvis may lead to a pathological condition with blood in the urine, and to an erroneous diagnosis of renal disease. Acute or chronic abdominal lesions are often attributed to the appendix. Thus in one-third

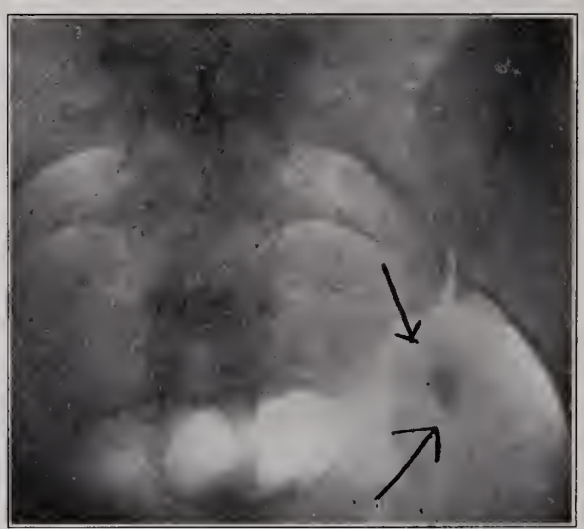


Fig. 7.—Case 4.—Showing descent and movability of ureteral calculus noted in Fig. 6. Calculus passed four days after first examination.

of the cases of stones in the left ureter, associated with colics, the appendix is removed without relief, and in approximately two-thirds of the cases in which there is a similar condition on the right side, the appendix is removed ineffectually."

Case one, I should like especially for you

to note. Mrs. S., admitted to the Lewis-Gale Hospital, August the 17th, 1924, with all the clinical symptoms of an acute appendix. Examination of the urine in the early morning by the referring physician was negative. However, another examination of urine at the hospital six hours later showed pus and a few blood cells. Dr. Gale postponed operation, ordered an X-ray examination next morning, and a large shadow was found in the right kidney region. A catheter was passed, which passed to the inner side of the shadow. A pyelogram done at this time showed a small amount of

Fig. 8.—Case 5. Pyelogram showing double pelvis left kidney and double ureters.

iodide solution encircling the shadow, which appeared to be in the pelvis, though we afterwards found out the pelvis of the kidney contained so much organized detritus and blood clots, we did not obtain an entirely satisfactory pyelogram. Several days later another pyelogram was made, and this time the entire shadow was surrounded by the solution, and the whole pelvis and calyces well filled, showing a small hydronephrosis. There are several very valuable lessons to be learned from this case. First, the fact that all symptoms appeared to simulate an acute appendix, and second the wisdom of more carefully weighing all evidence before performing an operation. The observation that no pus was found in the first urinalysis is explained by the blocking off of the ureter by the stone, followed by the acute attack. Dr. Gale later removed a large

Fig. 9.—Case 6. Referred by Drs. Whitman and Cary. Pyelogram showing moderate hydronephrosis and hydroureter.

renal calculus from the pelvis of the right kidney, a drain was inserted, and while there was some leakage and accumulation of a small pocket of urine several days later, this patient is making satisfactory progress at the present time.

Among some of the other conditions illustrated by the slides are diverticulum of the bladder, hydronephrosis, hydroureter, cystogram showing distortion of the bladder by retro-peritoneal sarcoma, vesical calculus, slides demonstrating the movability of ureteral calculus, renal calculus, double pelvis of the kidney and double ureters, and a case of bilateral kidney tumors of enormous size.

Case three in the series is unusual in that a shadow was seen on the preliminary examination, a catheter was inserted, and this shadow was seen to be apparently somewhat distantly removed from the pelvis of the kidney. The kidney was injected, the pyelogram showing a double pelvis with the stone in the lower pelvis. This patient had only recently been examined in one of the clinics of our larger cities for somewhat indefinite gastro-intestinal symptoms, was put on a diet, and sent home. The underlying cause of his illness was overlooked

Fig. 10.—Case 7. Referred by Dr. S. S. Gale. Pyelogram showing hydronephrosis with constriction of the ureter below uretero-pelvic junction.

by a failure to study the urinary tract. The same is true of the diverticulum of the bladder shown, this case having been treated for years for cystitis of unknown origin.

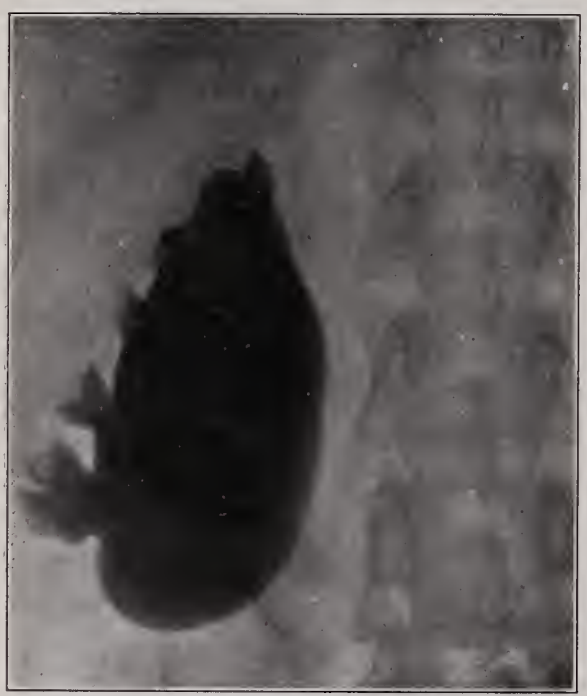


Fig. 11.—Case 8. Referred by Drs. Cary and Farmer. Pyelogram of large floating kidney showing enormous hydronephrosis, 120 c.c. of sodium iodide solution being injected. Note absence of hydroureter.

Conclusions. In this brief summary I have taken up some of the commoner pathological lesions of the urinary tract, illustrating the methods of roentgen ray study and diagnosis, and want to urge the necessity of a more careful and definite working out of your cases, and the great importance of continually bearing in mind the diseases of the urinary tract.

620 *Anchor Building.*

THERAPEUSIS BY INTRAPERITONEAL INJECTIONS IN INFANCY.*

By THOMAS E. OAST, M. D., Portsmouth, Va.

Therapeusis by the intraperitoneal route is not new. Sansby[1] and Siperstein found that as far back as 1875, Ponfick and Leigl, of Germany, and also Giovanni, of Italy, tried using this route for the injection of defibrinated blood. However, their results were so variable that the procedure was dropped, and it was not until 1918, when a report by Blackfan and Maxey[2] showed the safety of this method for giving saline solution, that it began to rise in popularity. Since that time numerous articles have appeared dealing with the separate phases of the subject, especially concerning its use in the administration of saline. It is the purpose of this paper to correlate this information and discuss briefly to what extent this route may be used as a therapeutic avenue.

Substances Available for Injection.

At the present time we are limited in this procedure to:

(1) Solutions such as normal saline, bi-carbonate of soda, glucose and Ringer's solution.

(2) Antitoxin in diphtheria.

(3) Blood.

Blackfan[2] and Maxey were the first to report using normal saline intraperitoneally. Many [3], [4], [5], [6], [7], [8], have since reported gratifying results in thtir experiences with these injections. Others have used from 5 per cent to 10 per cent glucose solution, 2 per cent bicarbonate solution and Ringer's solution, but their results have been erratic and it is now conceded that other than saline, these solutions had best be given orally, or in emergency, intravenously.

Marriott[9] in championing the glucose injections is a bit doubtful as shown in his statement that "Glucose has been given intraperitoneally with excellent results, but in a certain

*Read before the Norfolk County Medical Society, October 27, 1924.

number of cases leads to marked distention." Mitchell[8] also reminds us of the distention following solutions other than saline and goes so far as to warn against their use, intraperitoneally.

Platou,[10] of New York, was the first to use antitoxin by this method, reporting a series of patients with diphtheria in which he obtained excellent results. In this series, he confines himself to the use of diluted antitoxin, using 8 to 10 c.c. of saline solution as a diluent. Last year I gave antitoxin intraperitoneally in four cases of diphtheria and found it very effective; in two of these, using the diluted antitoxin, and in the remaining two, using it concentrated from the original syringe, and noting no difference in the effect produced.

Blood was the first substance ever injected intraperitoneally, dating back to 1875. As mentioned before, this was defibrinated blood and gave varying results. In recent years our attention has been attracted to this means for transfusion by Sansby[11] and Siperstein. They have shown: (1) that red blood corpuscles are absorbed from the peritoneal cavity; (2) that they re-enter the blood stream as red blood corpuscles; (3) that they are capable of functioning after re-entering the general circulation, proving conclusively that citrated blood can be injected intra-abdominally and with good therapeutic effect. Since some observers have noted in transfusions by the older routes that there is less reaction using whole blood than with citrated blood, the natural query is, why not use the whole blood intraperitoneally? It can be used, but there are varying reports as to its therapeutic efficacy.

Ruh[12] and McClellan (Ohio) report encouraging results in its use, while Sansby and Siperstein, whose work has been very exhaustive, failed to demonstrate the absorption of whole blood. In every case (referring to experiments on rabbits) they found clots in the peritoneal cavity at necropsy, and subsequently masses of adhesions. With citrated blood they failed to encounter either of these in a single instance.

The Need for an Intra-Abdominal Route.

One merely has to recall in his own experiences the difficulties encountered in previously existing methods to realize there is a vast field of usefulness for a method embodying simplicity, rapidity, effectiveness, and a minimum of annoyance to the patient. The advantages offered in the injection of saline solution are numerous. It is practically painless, the only sensitive step being the piercing of the abdominal wall. There is no discomfort during the flow of the fluid as that experienced in hypodermoclysis. The fluid is always retained, which cannot be said of that given orally or by bowel. It is much more simple though not as rapid as by the intravenous route. All of you know the difficulty in the utilization of the vein for injection in infancy. The rapid absorption can be judged from Mitchell's statement in quoting Blackfan and Maxey, that 40 to 60 per cent of injected fluid is absorbed within one hour. He also relates a case in which only 50 c.c. of saline solution was found in the peritoneal cavity at necropsy performed 6 hours after 200 c.c. had been injected. Then, too, there is the advantage that this route can be used over and over again; it lends itself to almost unlimited repetition. Large amounts—from 100 to 300 c.c.—varying with the weight of the infant, can be injected as often as every eight hours (Mitchell).[8]

Gittings and Donnelly[7] advocate using 20 to 30 c.c. for each pound of body weight, though they, too, limit the volume to 300 c.c. for one injection.

Relative to its use in the administration of antitoxin, the most important advantage lies in its rapidity. Platou[10] has shown that within an hour after intraperitoneal injection the blood is appreciably antitoxic, and up to seven hours the absorption is about five times that of the intramuscular injections, stating also that within an hour the antitoxin absorbed is more than sufficient to neutralize the circulating toxin in any case of diphtheria. Absorption is not as rapid as in the intravenous route, but this method is not intended to supplant that route except in selected cases. We do not have the intense suffering and localized tenderness seen after the intramuscular and subcutaneous injections. It is its simplicity, relative rapidity and lack of pain that makes the intraperitoneal route so attractive, especially in those infants whose veins are not suitable for injection.

It was after the intramuscular and subcutaneous methods in conditions demanding a transfusion were found lacking that the intra-abdominal route was sought for that purpose. Taylor[13] found that subcutaneous and in-

tramuscular injection of blood is usually followed by a rise in hemoglobin, but only a small fraction of cells so injected reach the circulation. He found the average non-agglutination count was 50,000, and after injection 97,350 whereas it should have been nearer 200,000. Transfusion, intravenously, is ideal under proper conditions, especially when a vein of sufficient caliber is at hand. Even then, it requires one more or less experienced in blood vessel surgery, and is a much more intricate procedure than the intraperitoneal.

The anterior fontanelle route was popularized by Helmholtz[14] in 1915, but this, too, has its limitations in that it is rarely available in infants over 18 months of age.

The Indications for Therapeusis, Intraperitoneally.

These would depend entirely on the substance to be injected. The indication for normal saline would include any condition requiring fluid, or accompanied by dehydration. These injections have found their greatest field of value in those gastro-intestinal diseases where the loss of fluid is great, due to vomiting and diarrhea.

The intraperitoneal route in the administration of antitoxin would be indicated in those cases of diphtheria requiring a more rapid effect than obtained by the intramuscular injection, and where it would be impractical to inject directly into the vein.

The indication in blood transfusion, for the intraperitoneal method, would be in those patients requiring a true transfusion in whom the intravenous route was not available, due either to small caliber of veins, or to the closure of the fontanelle.

Complications of Intraperitoneal Injections.

That this procedure is practically devoid of danger is attested by the rapid popularity it is attaining as a route for therapeusis. It is almost impossible for the needle to enter the gut, if properly inserted. Mitchell proves this point by noting the difficulty experienced in attempting to puncture the gut at autopsy with the size needle used in these injections. It is, however, necessary to make sure that the bladder is empty and that no distention is present. Peritonitis and shock have been reported following intraperitoneal injections (Backes[15]) but only in a comparatively few instances.

These complications must be exceedingly rare, for at the Children's Hospital in Philadelphia we gave these injections routinely in dehydrated infants, and not in a single case did we encounter these conditions. There is some danger of peritonitis when injecting infants who are afflicted with furunculosis, yet with a little added care and a scrupulous technic this should not be an absolute contra-indication. Mitchell[8] mentions the undesirability of using this route following recent abdominal operations, such for instance, as pyloric stenosis. It is evident that in these cases we might expect to get sloughing of the stitch wound by the distention and do more harm than the injection would do good.

In administering antitoxin intra-abdominally we experience the same phenomena attending such injections by any of the other routes, except that the chance for reaction is by no means as great as in the intravenous. We would do well to follow the usual precautions of injecting a small amount and waiting to see if there is anaphylaxis. The late manifestations, such as urticaria, occur in about the same proportion of cases as by the other routes.

The attending danger in intraperitoneal transfusion is that of any transfusion, and one that can be greatly minimized by previously typing the blood of donor and recipient. Sansby and Siperstein[1] in their series of cases, reported no alarming symptoms following this method.

Technic of Intraperitoneal Injection.

There are two methods of giving these injections, known as the syringe method and the gravity method. Both are safe—the use of one or the other depending on the rapidity desired in the flow of fluid into the abdominal cavity. Porter and Carter[16] give a clear description of these methods, from which I will quote freely.

Make sure there is no distention and that the bladder is empty. Then enfold the infant's pelvis and legs in a large towel which shall be snugly pinned. Restrain the arms across the chest in the same manner and lay the infant on his back. The operator should employ the strictest surgical asepsis, including scrubbing up and wearing rubber gloves. The abdomen is then cleansed with green soap, followed by 2 per cent iodine and 50 per cent alcohol, and draped with sterile towels. Next pick up a fold of skin and integument of the abdomen about 1/3 the distance from the

umbilicus and the symphysis, with the thumb and finger of left hand, inserting the needle in an upward direction, and in the mid-line, through the abdominal wall, (needle of 18 gauge, beveled at 45 degrees). The fluid is then injected slowly. No harm is done by dropping the base of the needle on the abdomen each time disconnection is made in order that the syringe may be refilled.

If one desires to use the gravity method, the container with the fluid is suspended two feet above the level of the site of injection. The fluid is started flowing through the tube and if at body temperature, the needle is inserted.

The technic described applies particularly for the injection of saline solution, though it can be used equally as well for the antitoxin or for the blood.

It is important to remember that any fluid injected into the peritoneal cavity should be at body temperature, and that a sterile dressing should be applied following the injection. In using diphtheria antitoxin, one can use it concentrated, or diluted by adding 8 to 10 c.c. of normal saline solution.

In intraperitoneal transfusion, Sansby and Siperstein[1] advocate using 10 c.c. of freshly prepared 2 per cent sodium citrate to every 100 c.c. of donor's blood, which should be kept at body temperature. Then strain through sterile gauze and inject immediately.

Summary.

A review of the literature reveals the fact that the intraperitoneal route offers a simple, safe, effective, and comparatively rapid avenue for administering therapeutic agents; that to date the substances available for injection are limited to:

1. Solutions, as saline, glucose, Ringer's, bicarbonate of soda.

The best results are reported from the use of normal saline solution.

II. Antitoxin in diphtheria, which can be used either concentrated or diluted. While there is no mention of tetanus antitoxin having been injected intraperitoneally, there seems to be no contraindication for its use, or for that matter of any non-irritating substance.

III. Blood.

Both whole blood and citrated blood have been used, but clinical reports favor using the citrated blood for injection into the abdominal cavity.

Bibliography.

1. Sansby and Siperstein, Jour. A. M. A., June 1[illegible] 1923, p. 1763.
2. Blackfan and Maxey, Amer. Jour. Dis. Children, Vol. 15, 1918, p. 19.
3. McLean and Lang, Amer. Jour. Dis. Chil., 1920, Vol. 24, p. 357.
4. Aikman, J., Jour. A. M. A., 1920, Vol. 74, p. 244.
5. Denzer and Anderson, Amer. Jour. Dis. Chil. 1921, Vol. 21, p. 565.
6. Donelly, J. D., N. Y. Med. Jour., 1921, Vol. 114, p. 151.
7. Gittings and Donnelly, Am. Jour. Dis. Chil., Feb., 1922, p. 124.
8. Mitchell, A. Graeme, Arch. Ped., May, 1922, Vol. 39, p. 291.
9. Marriott, Amer. Jour. Dis. Child., 1920, Vol. 20, p. 461.
10. Platon, Arch. Ped., Sept., 1923, Vol. 40, p. 575.
11. Sansby and Siperstein, Amer. Jour. Dis. Chil., Vol. 25, p. 1071.
12. Ruh and McClellan, Ohio State Med. Jour., (Columbus) Nov., '22, p. 769.
13. Rood Taylor, Amer. Jour. Dis. Child., Oct., 1920, Vol. 20, p. 340.
14. Helmholtz, Amer. Jour. Dis. Chil., Sept., 1915, Vol. 10. p. 174, quoted by Sansby and Siperstein (1).
15. Backes, quoted by Mitchell (8).
16. Porter and Carter, Management of Sick Infants, C. V. Mosby, 1st edition, 1920, p. 502.

716 *Court Street.*

ANEURISM.*

By ISRAEL BROWN, M. D., Norfolk, Va.

This paper is not so much a study of aneurism as a reference to the surgical treatment.

The operation for aneurism is one old in history. Antyllus described his operation of ligation of the artery immediately above and below the aneurism, with incision into the sac and turning out the clots. This was in the third century A. D.

Our observation for operative types, not considering the inaccessible, are arterial arteriovenous, and ruptured aneurism. The greatest causative factors are syphilis and traumatism. Osler says Venus, Bacchus, and Hercules are to be recognized as the etiologic trinity in the causation of aneurism. At least seventy per cent of aortic aneurisms are syphilitic; some authors place this as high as ninety per cent. Alcohol, not so great now, as well as posture and active life, are two causative factors. Syphilis acts by attacking the adventitia and media of the artery, causing gummata and necrosis, in this manner causing a gradual dilatation.

The regular tendency[1] of an aneurism is to enlarge without cessation until it ruptures.

*Read before the Norfolk County Medical Society, November 10, 1924.

Hence, the necessity of treating them from the moment they are recognized (Delbert).

Medical treatment of non-operative type, especially of the aorta, should be directed more to the anti-syphilitic factor—giving more mercury and arsphenamine, and not depending on the iodide of potash. This, with three months' rest in bed, and diet, has given good results to MacLachlan.[2]

It is well to digress here before going into the operative treatment to speak of a peculiar symptom in arteriovenous aneurism or fistula, as described by Matas.[3] He calls atttention to enlargement of the heart, and cardiac distress on pressure over the arteriovenous fistula (aneurism) of long standing. The Branham bradycardiac phenomenon, pressure over the long established fistula, would cause dropping of the pulse from 80 to 60 beats. This would persist if the pressure was kept up, and if continued the patient would feel faint and dizzy.

Hoover and Beams[4] were the first to describe and study the effect on the heart and circulation of a large arteriovenous aneurism. The symptoms resemble very much myocardial degeneration of an advanced stage with an hepatic pulse. One case described was so marked with ascites and edema that the symptoms were thought entirely due to heart disease, but showed a complete recovery after an operation upon the aneurism. These authors also described in detail the differential diagnosis and animal experimentation.

Chronologically the ligature operation is as follows:

Proximal side immediately above sac, Anel's operation, 1710.

Distance from the sac, Hunter's operation, 1785.

Distal side close to the tumor, Brasdor's operation, 1798.

Scarpa's operation, same as Hunter's except higher up in Scarpa's triangle, 1819.

One or two of its main branches, Wardrop's operation, 1825.

Immediately above and below the aneurism without opening the sac, Pasquin's operation. If the sac is opened, it is the operation of Antyllus.

Partial occlusion, Porta, 1800-1875.

Gradual occlusion, Halsted's metal bands.

The radical operation, aneurismotomy (Antyllus).

Aneurysmectomy (Philagrus and Purman) 1680.

Endo-aneurysmorrhaphy (Matas), 1888.

Evidently on account of gangrene and hemorrhage the operative study of aneurism in the pre-Lister, and before the anæsthetic era, was of profound interest. The amount of suppuration and secondary hemorrhage led John Hunter to devise his operation for ligating in Hunter's canal for popliteal aneurism.

While the Matas operation, or intrasacular method, should be the choice of operation, all the other and older methods have their applicability, and at times will have to be the operation of choice. The great danger of operation is gangrene. The intrasacular method interferes the least with collateral circulation. The object of this operation is either to obliterate, reconstruct, or restore the main arterial openings, closing all other openings in the sac—procuring perfect hemostasis. Matas has, with other operators devised certain means of testing the circulation by pressure on the main vessels, and watching the return of the circulation. In his later paper, he believes that the obliterative type has the most applicability; this has been our observation.

Despite bandaging, tourniquets, and catching the main vessels above and below the aneurism, the operation is a very bloody one. In ruptured aneurism the operation of choice should be the Matas operation, as blood flowing for some time will give the sac an endothelial lining the same as blood vessels, and the same adhesive power as peritoneum.

In our experience ruptured aneurism is a very serious accident. In our series of five cases were: one of the popliteal, with gangrene, amputation; recovery; femoral, of old standing, amputation at hip joint, recovery; femoral, of old standing, the classical operation (Matas), recovery; carotid, no operation, far advanced tumor, and death. This was not diagnosed until autopsy. Traumatic of femoral while waiting six weeks for a better formation of sac, ruptured with terrific hemorrhage in tissues; there was threatened gangrene, added hemorrhage of operation, and death.

Delbert says there is probably no other disease which exhibits such a long list of celebrated diagnostic errors.

An old ruptured aneurism is a condition that at times is very difficult to diagnose. I

cannot find this condition described in literature.

A patient presents himself with a circumscribed or diffused tumor of the extremity. It is a firm, semi-solid tumor, without any pulsation, bruit or thrills. The history is a tumor of recent growth, probably a month, and unless you get a history of previous pulsating tumor it is very difficult to diagnose. The patient is emaciated, confined to bed, has a very painful limb, and you will find marks where it has been aspirated or even punctured in one of its softer, apparently fluctuating points. Aspiration usually results in three or four drops of blood only. The tumor and general condition resemble a rapidly growing malignant growth. The patient is usually about the fourth decade, and the Wassermann is positive. The gross pathology is an endothelial lined cavity filled with old clot surrounding a center of softer fresh clot, with a stream of blood flowing out of the artery at the center or bottom of the growth with its capacity flow, like a small stream flowing under a bank of snow. This growth has followed the muscle planes and fascia, travels a considerable distance, and is under a great deal of tension.

Here, too, it is possible to perform the ideal aneurism operation of Matas. In arteriovenous aneurism the approach is either through the sac or through the vein, sacrificing the vein, if necessary, and suturing the opening in the artery.

Bibliography.

1. Keen's Surgery, Vol. 5.
2. MacLachlan, *Amer. Jour. Med. Sciences*, Vol. 159: 525.
3. Matas, Surg. Clinics of N. America, Oct., 1922, 1165.
4. Hoover and Beams, *Arch. Int. Medicine*, Jan., 1924, pages 1-22.

THE OUTLET AND ITS PELVIMETRY.*

By MILLARD B. SAVAGE, M. D., Norfolk, Virginia.

The outlet, as used as an obstetrical term, refers to the lower portion of the birth canal in and around that portion of the pelvis which is spoken of as the inferior strait. Anatomically it consists of bony and soft parts. Mathematically it represents two triangles with a line drawn between the ischial tuberosities as the common base.

The outlet is bounded anteriorly by the lower margin of the symphysis, laterally from before backwards by the pubic arch, the ischial tuberosities, the sacrospinous and the sacrotuberous ligaments. Posteriorly it is bounded by the tip of the coccyx.

From an obstetrical viewpoint the levator ani muscle is the most important structure of the soft parts and for practical purposes may be considered the pelvic floor, serving as a diaphragm to the inferior strait. During pregnancy[1] the levator ani muscle undergoes hypertrophy in order that it may function in its purpose to a better advantage. It supports the structures above it and in its support of the vagina and the rectum, its action is to draw them upward and forward towards the symphysis. During the second stage of labor it offers resistance to the fetal head until the time is reached when it can contract against the head in such a manner as to elevate the pelvic floor and, in so doing, it facilitates the expulsion of the fetal head. This action may often be used to an advantage in accomplishing the birth of the head between labor pains. After control of the head is obtained as it comes over the perineum, a gentle pressure from below upon the sinciput will assist proper extension and the occiput will rotate beneath the pubic arch slowly.

The diameters of the outlet which are of most importance represent the various distances between the bony parts of the anatomical pelvis, and the measuring of these distances constitutes outlet pelvimetry.

The transverse diameter, also called bituberal or interischial, is the greatest distance between the ischial tuberosities, and is measured at the level of the anus.

The anterior posterior diameter represents the distance from a point at the lower border of the symphysis to the sacrococcygeal articulation.

The posterior sagittal diameter is the distance between a point midway of the transverse diameter and the tip of the sacrum.

The development of outlet pelvimetry and the significance of its importance has grown gradually along with the advance of obstetrics and general pelvimetry. It may be said to have as its primary purpose the diagnosis of outlet contraction. The existence of the contracted outlet, or funnel pelvis, has been mentioned in many historical writings upon obstetrics. Williams[2] in a article upon this subject states that Deventer, de la Motte, Smellie and others reported isolated cases of outlet con-

*Read before the Norfolk County Medical Society at its meeting on November 24, 1924.

traction. During the eighteenth century Baudelocque gave an accurate description of the funnel pelvis. He is also credited with having invented the first pelvimeter, which consisted of a pair of calipers with a scale upon them to indicate the extent which they were opened.

Bush and Killian in 1839, stated that dystocia frequently occurred with a funnel pelvis. Breisky in 1870 described an instrument for measuring the distance between the ischial tuberosities and between the lower margin of the symphysis and the tip of the sacrum. Frankenhauser in 1879 estimated that one in each hundred pelves had contracted outlets. Klien in 1896 reported 24 per cent of his cases as contracted outlets and he devised an instrument for measuring what he designated as the posterior sagittal diameter. Williams in more recent years gives statistics on his observations showing that typical outlet contraction in which external measurements were normal with a transverse diameter of 8 c.m. or less, occurred in 6.9 per cent of his cases. He believes the majority of such cases to be due to the presence of a sixth vertebra in the sacrum, producing the so-called high assimilation pelvis. The relation of the sacroiliac joints is so changed as to permit the lower portions of the innominate bones to approach each other.

Schauta believed the outlet contraction other than the osteomalacia and kyphotic types to be an anomaly of development by which the pelvic bones are lengthened downward and the weight of body being thrown backward upon the sacrum.

The frequency of outlet contraction is being emphasized by many men at the present time. Various instruments and methods have been devised for determining with fair accuracy, the diameters of the pelvic outlet. Roughly, the transverse diameter may be estimated by trying to force the closed fist between the ischial tuberosities, or the tuberosities may be palpated and the distance between them estimated by inspection. More accurate measurement may be made by various pelvimeters which have been designed for this purpose, such as, the Williams, Little, Breisky and Skutsch instruments. Rudolph Klien, one of the pioneers in outlet pelvimetry, designated what is known as the posterior sagittal diameter and made an instrument for measuring it. The Thoms instrument which is now used is a modification of the instrument originated by Klien. Klien concluded that the posterior sagittal diameter must compensate for the narrowing of the transverse diameter in order for spontaneous labor to occur. That when the transverse diameter was 8.5 to 9 c.m., the posterior sagittal must be at least 7 c.m., and that when the transverse is 8 c.m. the posterior sagittal must be 9 c.m. in order to compensate. Klien estimated the normal posterior sagittal at 9.75 c.m., the anterior sagittal at 6 c.m., and the anterior posterior measurement at 11.5 c.m.

Rules are frequently referred to which are helpful in determining the relationship of the transverse and the posterior sagittal diameters, and the probability of normal labor.

1. The total sum of the transverse and the posterior sagittal measurements should exceed 15.5 c.m.

2. The transverse multiplied by the posterior sagittal measurement, and that sum divided by two should give an outlet value of not less than 25. This value is indicative of an extreme contraction which in many cases would require Caeserean section.

There are two methods of obtaining the posterior sagittal diameter: First, by measuring with the Thoms posterior sagittal pelvimeter; second, by a direct manual method which requires digital palpation per rectum, or vagina.

The posterior sagittal diameter when taken by the Thoms instrument requires assistance to manipulate.

In the direct manual method, digital palpation is made, per rectum, of the sacrococcygeal joint, and the distance upon the finger is measured to the center of the transverse diameter. In this method a modified Williams transverse pelvimeter is used. The modification consists of a small rod between the points of the instrument. An ordinary rubber band may be used to serve the same purpose with the Williams instrument. The Little instrument is even more convenient in this method, since it is more easily controlled with one hand, leaving the other free for rectal examination.

The following table represents the measurements and the computation of their outlet values in 25 cases. The posterior sagittal diamter has been taken by the two methods which I have previously described, and the mean of both is used in computing the outlet values.

No.	Transverse	Posterior Sagittal		Mean.	Outlet Value		Type of Labor.
		Method 1.	Method 2.		Rule 1.	Rule 2.	
1	9.25	8.5	9.5	9.	18.25	41.6	Normal
2	9.25	8.25	8.5	8.37	16.72	38.7	Normal
3	9.	8.	8.5	8.25	17.25	36.7	Prolonged
4	10.	8.5	9.25	8.87	18.87	44.3	Normal
5	10.25	8.5	9.25	8.87	19.29	43.6	Oc. Post.
6	9.5	8.25	9.25	8.75	18.25	41.	Normal
7	10.5	9.25	9.25	9.25	19.75	48.5	Normal
8	10.	8.5	8.5	8.5	18.50	42.5	Normal
9	9.5	8.	8.75	8.37	17.87	39.7	Prolonged
10	10.	8.	8.5	8.25	18.25	42.5	Normal
11	9.25	7.	8.	7.5	16.25	34.7	Forceps
12	9.5	8.	8.5	8.25	17.25	39.2	Normal
13	8.75	7.75	8.	7.87	16.62	38.	Normal
14	8.5	7.	8.	7.5	16.	31.9	Forceps
15	10.25	8.	8.25	8.12	18.37	41.6	Normal
16	7.75	7.	7.	7.	14.75	27.1	Forceps
17	10.25	7.5	7.75	7.67	17.91	39.3	Normal
18	9.5	7.25	8.5	7.87	17.37	37.4	Normal
19	8.5	6.	7.25	6.67	15.16	28.1	Forceps
20	10.	9.25	9.25	9.25	19.25	46.2	Normal
21	8.5	7.25	7.75	7.5	16.	31.9	Normal
22	9.	6.25	6.5	6.37	16.37	21.7	Forceps
23	8.75	7.25	7.25	7.25	16.	31.7	Normal
24	8.5	7.75	8.	7.87	16.37	33.5	Normal
25	9.	7.25	8.	7.67	16.67	34.5	Normal

In these 25 cases there were 18 spontaneous normal labors and 7 prolonged labors of 24 hours or longer. Three of the prolonged cases delivered themselves, one being a persistent occiput posterior. The other two were primiparous patients and episiotomy was done in each case. The four other prolonged cases were delivered by forceps, four of which were difficult, and first or second degree laceration was obtained in each case.

In one case which had an outlet value of 27.1, there was much difficulty in the forceps delivery. The child weighed only 5.5 pounds and a second degree laceration was obtained.

Out of this series only one case had a transverse diameter of less than 8 c.m., which was the case with the outlet value of 27.1.

Six cases of the series were considered as borderline contracted outlet cases, and four of them delivered without prolongation of labor.

The average of the measurements and values was as follows: Transverse diameter 9.46 c.m.; posterior sagittal by pelvimeter 7.77 c.m; posterior sagittal by manual palpation 8.25 c.m.; outlet value by rule 1, 17.36 c.m.; outlet value by rule 2, 37.8.

Summary of outlet values in the prolonged cases:

Rule 1.	Rule 2.	Type of Labor	Weight of Baby	Laceration
17.25	36.7	Episiotomy.	7 lbs., 11 ozs.	1°
19.20	43.6	Oc. Post.	7 lbs., 5 ozs.	0
17.87	39.7	Episiotomy.	7 lbs., 6 ozs.	1°
16.25	34.7	Forceps, easy	7 lbs., 4 ozs.	0
14.75	27.1	Forceps, hard.	5 lbs., 8 ozs.	2°
15.16	28.1	Forceps, hard.	6 lbs., 1 oz.	1°
16.37	27.7	Forceps, hard.	6 lbs., 8 ozs.	2°

Practice of obstetrics may be classified into three periods of time: 1, the prenatal period; 2, the operative period, and 3, the puerperal period. Each period may vary in duration of time, but the one is dependent upon the other respectively and carries with it the same aim and ideal, that is, to obtain a living mother, a living child, and a satisfactory end result.

Prenatal obstetrics gives ample opportunity for study and diagnosis, which becomes very

important in the proper conduction of the operative obstetrics, or delivery.

The physician who sees a case for the first time after labor has progressed for a time is handicapped, when the conduction of this case is compared with a similar case which has had a prenatal study. Let us suppose that in each case there is a like complication, for instance, a contracted outlet. In the first case perhaps the patient will have been in hard labor for some little time. The head might be arrested at the outlet, and in sight through the vulva. The fetus would be average if not oversized. There may be a beginning fetal distress. After determining the cause of the dystocia, then the proper treatment, or more probably the best treatment, has to be carried out at whatever cost. Consider the case which has been studied in the prenatal period. The conduction of this case may not always be ideal, but a diagnosis of the outlet contraction has been made early. The relative size of the passenger and the passage has been studied. Each factor is considered with careful judgment, keeping in mind that spontaneous parturition, even slow, is better. The degree of contraction may vary from a minimum to an intermediate or to a maximum quantity. The treatment would vary accordingly, and should be the one which offers the best chance for a living child and a normal puerperium for the mother. With a minimum contraction, no great amount of dystocia will result as a rule, and delivery usually occurs spontaneously.

Sometimes a moderate outlet contraction can be corrected by the postural treatment during labor, which consists in abducting and flexing the thighs while patient is in the prone position. This position causes a slight rotation of the innominate bones about the sacrum in such a way as to cause a definite increase in the size of the outlet. This increase may be just enough to change a hard into an easy forceps delivery.

An intermediate outlet contraction may require a premature induction of labor or, if seen late, some radical procedure may have to be done. Forceps, version, and pubiotomy carry with them a definite danger in obtaining a satisfactory end result in such cases.

Maximum outlet contraction may have as the choice either Caeserean section or pubiotomy. Stone[3] has recently reported two cases of outlet contraction which necessitated delivery by Caeserean section. In one of his cases preliminary external measurements were normal. The bituberal diameter was 5.75 c.m. and the posterior sagittal diameter was 8.5 c.m. A Caeserean was chosen over pubiotomy with satisfactory results.

In conclusion there are a few points which I wish to stress: The pubic arch is always to be considered in obstetrics and should be measured in each routine prenatal examination.

Any measurement of the transverse diameter which is 8 c.m. or less should be studied as to its outlet value.

Delivery is not dependent upon the measurement of either the transverse or the posterior sagittal diameters in a contracted outlet, but upon the compensating length of the one to the other.

Outlet contractions[4] occur in about 7 per cent of all cases and are one of the frequent causes for dystocia. The occiput in some of these cases is frequently visible at the vulva. Forceps delivery of the cases which are arrested at the outlet is often difficult.

Tissues over the spines are subject to necrosis and laceration in outlet contractions since unusual pressure is exerted upon them when delivery is being accomplished by the compensating effect of the posterior sagittal capacity. Severe lacerations of the perineum are frequently caused by a contraction of the outlet.

Lastly, the degree of contraction of the outlet is to be considered together with the probable disproportion of the fetal head in determining the possibility of normal spontaneous delivery.

References.

1. Williams. Text Book upon Obstetics. p. 265.
2. Williams. Etiology, Frequency and Practical Significance of Outlet Contractions. Surg., Gyn. & Obst. vii:L19, 1909.
3. Stone. Amer. Jour. Obs. & Gyn. Vol. viii. Nov., 1924. p. 625.
4. Williams. Text Book upon Obstetrics. p. 750.

400 *Fairfax Avenue.*

Better Care for Mothers.

A nation-wide movement to improve maternity conditions has been begun by the American Gynecological Society, the American Child Health Association, and the American Association of Obstetricans, Gynecologists and Abdominal Surgeons.

Clinical Reports

A CASE OF TYPHOID PERFORATION WITH RECOVERY.*

By RICHARD MASON, M. D., The Plains, Va.

Going into the bank one morning to transact some business, the cashier, a young man of 25, stopped me to say that he was feeling a "little bilious," and asked if I had any calomel with me. Having my medicine case with me and being in a hurry, I gave him some calomel pellets, with directions how to take them, and went on my rounds, dismissing the incident from my mind.

However, on going into the bank the following afternoon, he again stopped me, saying the medicine had acted very well but that he still felt a little out of sorts and not just up to the mark. Not being in such a hurry this time, I looked him over a little more carefully, taking his pulse, temperature and respiration and found nothing out of the normal except a temperature of 101. As there had been a good deal of typhoid in the neighborhood at that time, I immediately became suspicious and advised him to go home and go to bed, and let me see him the next day. At the same time I gave him some general directions about his diet, etc.

The following morning when I saw him at 11 o'clock, I found him with pulse, temperature and respiration all normal, tongue clean, feeling good and anxious to get up and go to the bank to work. However, to be on the safe side, I advised him to remain in bed, on a restricted diet, and let me get his evening temperature. Being a man of unusual intelligence, he consented to do so.

The temperature that evening went up again to 100 or 101, falling again to normal the following morning. This morning remission, or I should say intermission, and evening exacerbation of temperature continued for several days without any further developments till the afternoon of the third day when I was off in the country about seven or eight miles on horse back. I received a phone call to come at once as Mr. K. was very ill.

When I got back I found him doubled up with an acute pain in the right side of the abdomen, most intense in appendix region and so severe that I had to give three hypodermics of morphia before he got any relief whatever. In the meantime I called Dr. Jas. F. Mitchell, of Washington, telling him I was bringing in a surgical case on the next train, that I thought would need immediate operation.

When we arrived at the hospital several other doctors happened to be there, and when Dr. Mitchell came out of the operating room and said "Well, what have you got this time?" I gave him briefly the history as above, saying, "You ask me what I've got; I suspect typhoid, but believe I'll just let you make the diagnosis after you've cut in." The other doctors present became interested and after we had been to the patient's room for further examination, there was a good deal of discussion as to whether the case would prove one of ruptured appendix or typhoid perforation, Dr. Mitchell inclining to the latter.

On going in he had no difficulty in finding a large, jagged perforation in the ileum, a few inches above the ileocecal junction, and along the small gut for some distance above the appendix there could easily be seen several purplish discolored splotches, indicating the site of other infected glands. The perforation was repaired and the patient hurried off to his room in a condition of extreme shock bordering on collapse, and I think Dr. Mitchell was much relieved when he came down the next morning to find, instead of having to write a death certificate, the patient was smoking a cigarette and talking cheerfully to his nurse.

On coming out of the operating room, one of the doctors who had bet it would turn out a case of ruptured appendix, apologized to me for, as he expressed it, "doubting my diagnosis." I said, "I beg your pardon but I did not make any diagnosis. I stopped making those fifteen years ago. I only said I suspected typhoid."

There was no further rise of temperature after the operation and the patient made a rapid and uneventful recovery.

I have reported this case because it seemed to me to be one of unusual interest both from a medical and surgical standpoint—from a medical standpoint, because it suggests that there may be quite a number of cases of mild typhoid with almost no symptoms of the disease, as was the case with this patient, who had none of the classical symptoms such as continued fever, prostration, sordes, rose-spots,

*Reported before the fifty-fifth annual meeting of the Medical Society of Virginia, at Staunton, October 14-17, 1924.

tympanites, etc. Had not this particular ulcer happened to penetrate deeply enough to rupture the serosa, he would probably have gone on to recovery without anyone ever knowing that he had typhoid fever. These mild cases are usually diagnosed as "para-typhoid." "walking typhoid," "gastric fever," etc., and continue to go about acting as carriers, not in the usual sense of the chronic carrier, but as carriers, nevertheless.

I omitted to mention that two negative Widals were obtained from this patient between the time I first saw him and the operation. The blood culture test had not at that time come into general use.

From a surgical standpoint the case is of course, of unusual interest, because a timely surgical operation unquestionably saved the patient's life.

Correspondence

Poisoned From Drinking Cider.

Bedford, Va.,
November 20, 1924.

To the Editor:

In response to your request for information as to the poisoning at the Elks National Home, Bedford, Va., facts are as follows:

At luncheon, November 10, 1924, cider was served to some of the brothers at the Home. We were never able to ascertain just how many drank of cider from the poisoned keg as cider was also served from another container, but suppose that every one drinking of the poisoned cider was immediately affected. Twenty-eight of the brothers and three servants were made sick. Immediately after drinking the cider, in some cases before they could reach their rooms in the cottages, those affected became violently sick with nausea, vomiting, retching, purging, straining, tenesmus, etc. They had violent griping pains in the stomach, pains in the muscles, especially in the back and in the calves of the legs, with muscle tremor; they were cold, clammy, often with profuse sweating, sunken eyes and cheeks; a dusky, congested appearance of the face; more or less shock in all and some had total collapse and coma in a short while; all had a profoundly disturbed circulation, with weak, fast, irregular, thready pulse and failing heart action.

Within five hours, one died, and seven more died within seventeen hours. One died after thirty hours, one after forty-two hours and one lived fifty-four hours, making a total of eleven deaths to date. It is likely that one of the living ones, eighty-six years of age, will die. The rest of those affected by the cider are doing quite well and most of them are up and around. The three servants are also doing well.

Dr. Lawson and Dr. Cattenach, of Jefferson Hospital, Roanoke, Va., are collaborating with me in the treatment of these cases and we will later give a full scientific report. Arsenic was found in abundance by laboratory test of the cider and later found to have been contained in a keg previously used for "Squier's Mud Killer," a water soluble preparation of arsenic.

J. A. Rucker, M. D.
Physician to the Home.

Proceedings of Societies

Arlington County Medical Society.

At the November meeting of this Society, the following officers were elected for the ensuing year: Dr. J. H. Walton, Cherrydale, president; Dr. Edward McCarthy, Cherrydale, vice-president; Dr. B. H. Swain, Ballston, secretary-treasurer. It was decided hereafter to hold the meetings quarterly, in February, May, August and November.

This meeting was largely and enthusiastically attended and many subjects of importance discussed. A committee, consisting of Drs. R. N. Sutton and B. H. Swain, was appointed to revise and correct the prices for surgical and medical attendance to higher figures, so as to conform more to the prices charged by the members of the District of Columbia Medical Society, and it was decided to publish the revised prices in the county papers.

B. H. Swain,
Secretary-Treasurer.

The Accomack County Medical Society

Held its regular meeting in the Drummondtown Tavern, November 5, 1924, at which time the following officers were elected for the ensuing year: Dr. W. M. Burwell, Chincoteague, president; Dr. W. W. Kerns, Bloxom, vice-president; Dr. John W. Robertson, Onancock, secretary-treasurer (re-elected).

Letters of sympathy were ordered written to Drs. Rooker J. White, Keller, and Oscar L. Powell, Onancock, incident to their sickness.

Dr. John H. Ayres was appointed to draft suitable resolutions of respect in memory to Dr. Edgar W. Robertson, deceased.

Dr. Knott, of the County Health Unit, was elected an honorary member of the Society.

It was decided to hold the annual banquet at the Drummondtown Tavern on December 19, 1924, and the physicians of Accomac C. H. were appointed a committee to arrange same.

It was decided to hold meetings quarterly in the future.

JOHN W. ROBERTSON,
Secretary.

The South Piedmont Medical Society

Held its semi-annual meeting in Danville, Va., November 18. The program included a number of interesting papers and the meeting was well attended. It was decided to hold the next meeting in South Boston, Va., in April, 1925. Dr. Ray Moore, Phenix, and Dr. George A. Stover, South Boston, are president and secretary, respectively.

The Truth About Medicine

In addition to the articles enumerated in our letter of September 27th, the following have been accepted:

Battle Creek Food Company
- Lacto-Dextrin

Eli Lilly and Company
- Pituitary Extract—Lilly (Obstetrical)
- Pituitary Extract—Lilly (Obstetrical), 0.5 c.c.
- Pituitary Extract—Lilly (Obstetrical), 1 c.c.
- Pituitary Extract—Lilly (Surgical)
- Pituitary Extract—Lilly (Surgical), 1 c.c.

Medical Laboratories, Inc.
- Culture Bacillus Acidophilus—Medical Laboratories, Inc.

Merck and Company
- Barbital—Merck
- Barbital Sodium—Merck
- Carbon Tetrachloride—Merck Highest Purity "C. P."

H. K. Mulford Company
- Cargentos Capsules, 3 grains
- Cargentos Ointment, 5 per cent.
- Diphtheria Toxin—Antitoxin Mixture, New Formula (Park Banzhaf's 0.1 L+ Dose)—Mulford

Nutrivoid Diabetic Flour Company
- Nutrivoid Flour

Parke, Davis and Company
- Antidysenteric Serum—P. D. and Co., 20 c.c. syringe.

Powers-Weightman-Rosengarten Company
- Quinine Ethyl Carbonate—P. W. R.

NEW AND NON-OFFICIAL REMEDIES.

Meroxyl.—A mixture containing approximately 50 per cent of the sodium salt of 2,4-dihydroxy-3,5-dihydroxymercuribenzophenone-2'-sulphonic acid, with foreign matter containing ammonium 2,4-dihydroxybenzophenone-2-sulphonate, sodium acetate and water. Meroxyl is a local antiseptic and germicide proposed for use in superficial infections. It is used for wet dressings of wounds, and also for irrigation of wounds and infected bladders. Meroxyl is marketed in the form of tablets containing 0.15 Gm. Hynson, Westcott and Dunning, Baltimore. (Journal A. M. A., Oct. 4, 1924, p. 1079).

Metaphen.—Bisacetoxymercuri-4-nitro-2-cresol. It contains from 58 to 60 per cent. of mercury in organic combination. Metaphen is a germicide, more powerful than mercuric chloride and certain organic mercury compounds when tested on cultures of *Staphylococcus aureus* and *Bacillus typhosus*. It is stated to be relatively non-irritating when applied to mucous membranes or the skin, and to be without deleterious action on metallic instruments or rubber. Metaphen is proposed for use in the treatment of gonorrhea, infections of the eye, for skin sterilization and for sterilization of instruments and rubber. It is insoluble in water and for use, solutions must be prepared with the aid of sodium hydroxide. It is supplied in the form of metaphen solution 1:5,000. Abbott Laboratories, Chicago. (Journal A. M. A., Oct. 11, 1924, p. 1167).

Sterile Ampules Mercury Benzoate 2 per cent., 1 c.c.—Mercuric benzoate—N. N. R. (New and Non-official Remedies, 1924, p. 200, 0.02 Gm. (1/3 grain), in a solution of sodium chloride 2.5 per cent., 1 c.c. Swan-Myers Co., Indianapolis.

Sterile Ampules Mercury Succinimide, 0.01 Gm. (1/6) gr.—Mercuric succinimide—N. N. R. (New and Non-official Remedies, 1924, p. 204), 0.01 Gm., in water 1 c.c. Swan-Myers Co., Indianapolis.

Sterile Ampules Mercury Salicylate, 0.065 Gm. (1 grain).—Mercuric salicylate—U. S. P., 0.065 Gm.; benzocaine—N. N. R., 0.02 Gm., in neutral vegetable oil, 1 c.c. Swan-Myers Co., Indianapolis.

Sterile Ampules Mercury Biniodide, 0.01, Gm.; (1/6 grain).—Mercuric salicylate—U. S. P., 0.097 Gm.; benzocaine—N. N. R., 0.02 Gm., in neutral vegetable oil, 1 c.c. Swan Myers Co., Indianapolis.

Sterile Ampules Mercury Biniodide, 0.01. Gm.; (1/6 grain) in oil.—Red mercuric iodide—U. S. P., 0.01 Gm. suspended in pure cottonseed oil, 1 c.c. Swan-Myers Co., Indianapolis.

Concentrated Tetanus Antitoxin (Globulin).—Tetanus antitoxin, concentrated (New and Non-official Remedies, 1924, p. 297), marketed in packages of one syringe containing 10,000 units; in packages of one syringe containing 20,000 units; in packages of one cylinder containing 5,000 units for intraspinal use; in packages of one cylinder containing 10,000 units with intravenous outfit. Lederle Antitoxin Laboratories, New York.

Antipneumococcus Serum, Type 1.—Antipneumococcus serum (New and Non-official Remedies, 1924, p. 304), marketed in packages of one cylinder containing 100 c.c. with intravenous outfit; in packages of one vial containing 100 c.c. Lederle Antitoxin Laboratories, New York.

Antistreptococcic Serum, Polyvalent.—Antistreptococcic serum (New and Non-official Remedies, 1924, p. 305), marketed in packages of one syringe containing 20 c.c.; in packages of three 10 c.c. vials; in packages of one vial containing 50 c.c.; in packages of one vial containing 100 c.c.; in packages of one cylinder containing 100 c.c. with intravenous outfit. Lederle Antitoxin Laboratories, New York.

Acne Vaccine.—Acne vaccine (New and Non-official Remedies, 1924, p. 316), marketed in packages of four vials containing respectively, 5, 10, 20 and 40 million killed acne bacilli; in packages of one 5 c.c. vial containing 40 million killed acne bacilli per c.c.; in packages of one 10 c.c. vial containing 40 million killed acne bacilli per c.c. Lederle Antitoxin Labora-

tories, New York. (Journal A. M. A., Oct. 18, 1924, p. 1245).

Staphylococcus Vaccine Polyvalent—Lederle.—Staphylococcus Vaccine (New and Non-official Remedies, 1924, p. 324), marketed in packages of one 5 c.c. vial containing 800 million killed *Staphylococcus albus*, 800 million killed *Staphylococcus aurcus* and 400 million killed *Staphylococcus citreus* per c.c.; in packages of one 10 c.c. vial, containing 800 million killed *Staphylococcus albus*, 800 million killed *Staphylococcus aurcus* and 400 million killed *Staphylococcus citreus* per c.c. Lederle Antitoxin Laboratories, New York.

Pneumococcus Vaccine Polyvalent—Lederle.—Pneumococcus vaccine (New and Non-official Remedies, 1924, p. 322), marketed in packages of one 5 c.c. vial containing 3,000 million killed pneumococci per c.c. Lederle Antitoxin Laboratories, New York.

Typhoid Vaccine (for prophylactic treatment)—Lederle. Typhoid vaccine (New and Non-official Remedies, 1924, p. 326), marketed in packages of 30 vials; in packages of one 5 c.c. vial containing 1,000 million killed typhoid bacilli per c.c.; in packages of one 20 c.c. vial containing 1,000 million killed typhoid bacilli per c.c. Lederle Antitoxin Laboratories, New York.

Typhoid Combined Vaccine Prophylactic.—Lederle. Typhoid vaccine (New and Non-official Remedies, 1924, p. 326), marketed in packages of 30 vials; in packages of one 5 c.c. vial; in packages of one 20 c.c. vial. Lederle Antitoxin Laboratories, New York. (Journal A. M. A., Oct. 25, 1924, p. 1335).

PROPAGANDA FOR REFORM.

Pluriglandular Products of Harrower.—In 1919, the Council on Pharmacy and Chemistry examined a number of the products of the firm of Henry R. Harrower, Glendale, California. It found none acceptable for New and Non-official Remedies. An examination of the "literature" sent out by the firm during the last year shows that its business is still largely in complex mixtures such as those reported on adversely by the Council. (Journal A. M. A., Oct. 4, 1924, p. 1098).

New Wilson Remedy Co.—Recently some physicians in Ohio received letters from the New Wilson Remedy Co., giving as its address 1042 St. Clair Avenue, Cleveland, Ohio, suggesting they "become interested in getting the profits from medicines that usually go to outsiders." They were informed that it was proposed to purchase the entire formula, stock, name, etc., of the present New Wilson Remedy Co., which now sells "Wilson's Pills," formerly known as "Wilson's Pills of Life," and stated to have proven "very effective" in "Chronic Rheumatism, Lumbago, Neuralgia, Sciatica and Menstruation." "The New Wilson Remedy Company" appears to be a trade style used by one George C. McKay. McKay, it is said, is a sales agent for various concerns and his wife apparently takes care of the mail order patent medicine business. The "Company" merely has desk room at 1042 St. Clair Avenue, Cleveland. (Journal A. M. A., Oct. 4, 1924, p. 1096).

Benzyl Benzoate and Arterial Hypertension.—While the Council on Pharmacy and Chemistry recognizes the existence of honest differences of opinion on many therapeutic questions, and desires to be liberal in its attitude toward all worthy innovations, it refuses to admit claims which are neither in harmony with already accepted facts nor supported by acceptable evidence. The wisdom of this rigorous attitude has been recently demonstrated anew with respect to the widely acclaimed benzyl benzoate. The Council has insisted that its clinical use is still in the experimental stage, despite the alluring announcements of the various alleged virtues of the compound. Benzyl benzoate has, for example, been recommended and doubtless frequently prescribed for reduction of arterial hypertension. A careful clinical study, however, shows that benzyl benzoate, if taken in 25 to 30 drop doses (20 per cent. alcoholic solution), has no effect on blood pressure. Furthermore, even continued therapeutic administration over a period of days produced no effect on the blood pressure of patients suffering with hypertension. (Journal A. M. A., Oct. 11, 1924, p. 1171).

Some "Mixed" Vaccines of G. H. Sherman Not Accepted for N. N. R.—The Council on Pharmacy and Chemistry reports that the following "mixed" vaccines of the firm of G. H. Sherman were found to be unacceptable for New and Non-official Remedies: Erysipelas Vaccine No. 1, Pneumo. Mixed Vaccine No. 6, Strepto. Staph. Vaccine No. 10, Colon Bacillus Combined Vaccine (Modified Van Cott), No. 35, Friedlander Vaccine No. 36, Influenza Vaccine No. 38, Catarrhal Vaccine No. 40, Whooping Cough Mixed Vaccine No. 43. As evidence for these "mixed" vaccines the firm submitted a printed brochure. "Data on the Use of Mixed Bacterial Vaccines." Part of the data consisted chiefly of the reproduction of letters from physicians—some of them men of high standing—testifying to the value of "mixed" vaccines in various conditions. The other part of the data consisted of abstracts or reprints of articles which have appeared in medical publications. This evidence the Council found unacceptable. The evidence for the several vaccine mixtures under consideration did not establish the rationality of any of them. On the contrary, their use is bound to lead to haphazard therapy—particularly so, because the trend of the Sherman advertising which accompanies the products is toward the use of vaccine mixtures. This includes a complete line of Sherman vaccines and contains a long list of diseases with recommendations for the use of vaccines, generally referred to by numbers rather than by names descriptive of their composition. (Journal A. M. A., October 11, 1924, p. 1184).

Jack Sprat Bread, Another Obesity Cure Fake.—This bread is put on the market by Charles Sulzer and Co., Chicago, and proclaimed by Sulzer to be "My Magical Discovery." It is said to be "rich in protein" and "unusually low in starch." It is claimed " * * * easily and pleasantly Jack Sprat restores the beauties of form and features." Analysis shows that Jack Sprat Bread has between 29 and 33 per cent of starch and a total carbohydrate content of 36 to 40 per cent. It seems to be a very ordinary product which is a hybrid between a gluten and a whole wheat bread. The statement that the bread is unusually low in starch content is false. It is not true, as claimed, that the obese can reduce by eating all they want, whenever they want it. The claim that "Nothing can reduce you as Jack Sprat will" is sheer quackery. (Journal A. M. A., Oct. 18, 1924, p. 1261).

Gomenol.—Gomenol is a volatile oil obtained from a plant related to the plant that yields oil of cajuput. It is very similar to oil of cajuput and its therapeutic properties probably are also like it. Gomenol comes as a proprietary from France and it is exploited under extravagant claims. (Journal A. M. A., Oct. 18, 1924, p. 1264).

Carnrick's Organotherapy.—The G. W. Carnrick Co. sends out a 253-page brochure, "Organotherapy in General Practice," which evidently is intended to promote the use of the pluriglandular products which this firm exploits. The following appears under the

heading "Insulin in Treatment": "For the routine treatment of diabetes of the mild or moderately developed type, extending over years, the daily or twice daily injection of an expensive product has failed to meet the requirements. Oral administration appears to be the only satisfactory method for this long continued treatment in the home. Numerous extracts have been prepared for oral administration and have proved successful in reducing blood sugar and correcting disturbed carbohydrate metabolism. Berkeley, Wallis, Achard and others have prepared extracts which gave good results clinically and Banting and Best and Murlin have given experimental evidence of the value of such extracts by administration through the stomach. No pancreas preparation, however, has received as extensive clinical trial as Trypsogen." An insulin preparation, effective when administered orally, would be most desirable. But there is no evidence to indicate that such a preparation has been evolved. The caution still holds good: "It is desirable to give wide publicity to the current limitations of a most promising therapy, since unscrupulous venders of drugs are already attempting to distribute the just-as-good pancreatic and antidiabetic preparations that are recommended for oral use." (Journal A. M. A., Oct. 18, 1924, p. 1264).

St. James Oil.—For many years one Harry Ellington Brook conducted a department of medical and quasimedical misinformation in the Sunday Magazine Section of the Los Angeles *Times*. Brook was a "Nature Doctor" and a chiropractor. Brook advertised in the Los Angeles *Times* to restore health by natural methods. He was an exponent of drugless therapy, but he was not above exploiting a "patent medicine." A fraud order recently issued by the Postoffice Department against Brook and the "St. James Oil Company," brings out the fact that Brook had for years been engaged in exploiting a nostrum called "St. James Oil," at the same time that he was inveighing against all drugs in his department in the Los Angeles *Times*. Analysis showed the product to be 98 per cent mineral oil, resembling liquid petrolatum and 2 per cent volatile oils of eucalyptus and of lemon. (Journal A. M. A., Oct. 25, 1924, p. 1353).

Book Announcements

A Manual of Diseases of the Nose, Throat, and Ear. By E. B. GLEASON, M. D., LL. D., Professor of Otology, Medico-Chirurgical College Graduate School, University of Pennsylvania. Fifth Edition, thoroughly revised. Philadelphia and London. W. B. Saunders Company. 1924. 12mo. 660 pages, 212 illustrations. Cloth, $4.00 net.

The fifth edition of this handy manual has been thoroughly revised and made to conform to the very latest ideas in this particular field. Among the many interesting additions may be mentioned the newer methods of local anesthesia, biologic therapeutics, etc. It is an ideal book for the general practitioner as well as a quick reference for the specialist. H.

Medical Record Visiting List, or Physicians' Diary. Revised. New York. William Wood and Company, Medical Publishers. Leather binding, with pencil, pocket size. The 60-patients per week size, leather binding, $2.00.

These books for the keeping of records of patients are gotten up in neat style and in convenient size. Included in the book are twenty-seven pages with much practical information which many physicians like for reference.

Pediatrics. By various authors. Edited by ISAAC A. ABT, M. D., Professor of Diseases of Children, Northwestern University Medical School, Chicago. Volume IV., containing 1,271 pages, with 218 illustrations. Philadelphia and London. W. B. Saunders Company. 1924. Cloth, $10.00 per volume. Set complete in eight octavo volumes, totalling 8,000 pages with 1,500 illustrations, and separate Index Volume, free. Sold by subscription.

The American student of pediatrics will no longer have to resort to foreign reference works to get the best information available anywhere in the world on diseases of children. Abt's Pediatrics embraces the entire subject in a manner preeminently noteworthy for devotion to detail, soundness of teaching, and thoroughness of discussion.

Volume III. had for its first article the "Nem" System of Nutrition by Professor von Pirquet of Vienna, followed by a complete series of monographs on the gastro-intestinal tract.

The fourth volume completes the respiratory articles and includes diseases of the blood and genito-urinary systems. A right thorough chapter by Professor Graham, of Washington University, on the "Surgery of the Thorax" indicates that this work will prove of inestimable value to the surgeon. A striking feature of this chapter is that, while it takes only 133 pages, the bibliography has 316 separate references. Dr. Palmer Findley's chapter of 32 pages on "Female Genital Organs" has 149 references.

Professor Samuel Ambery, of the Mayo Foundation, is the author of "The Urine in Infancy and Childhood." With 413 references, this is probably the most complete article in the volume. Among the other prominent contributors to this volume may be mentioned Blackfan, Fleischner, Friedlander, Grulee, Helmholtz, Hempleman, Hoobler, Lucas, etc.

There have been exhaustive treatises on medicine, surgery, and many of the specialties, but here is the first complete American work on Pediatrics in thirty-five years. Every doctor doing any work in this branch will find what he needs in Abt's Pediatrics. H.

Virginia Medical Monthly

FOUNDED BY LANDON B. EDWARDS, M. D., APRIL, 1874.
OWNED BY THE MEDICAL SOCIETY OF VIRGINIA.
PUBLISHED BY THE PUBLISHING COMMITTEE.

A. G. BROWN, Jr., M. D., Chairman, Richmond, Va.
B. R. TUCKER, M. D., Richmond, Va.
P. W. HOWLE, M. D., Richmond, Va.
E. L. KENDIG, M. D., Victoria, Va.
A. L. GRAY, M. D., Richmond, Va.
ALEX. G. BROWN, Jr., M. D., Editor.
AGNES V. EDWARDS, Business Manager and Secretary-Treasurer.

All correspondence regarding editorial matters, articles, advertisements, subscription rates, etc., should be addressed to the Journal.

All advertisements are received subject to the approval of the Council on Pharmacy and Chemistry of the American Medical Association.

Subscription Price: $2.00 per annum in advance.
Single Copies 20c.

Vol. 51 DECEMBER, 1924 No. 9

Editorial

SPECIAL NOTICE

IN ACCORDANCE WITH RESOLUTION ADOPTED AT THE STAUNTON MEETING OF THE MEDICAL SOCIETY OF VIRGINIA, THE PROGRAM COMMITTEE OF THE SOCIETY MET ON NOVEMBER 10, 1924, TO FORMULATE PLANS FOR MAKING THE PROGRAM FOR THE ANNUAL MEETINGS.

THE FOLLOWING RESOLUTION WAS UNANIMOUSLY ADOPTED:

1. NO TITLE SHALL BE ACCEPTED FOR THE PROGRAM PRIOR TO TWO MONTHS BEFORE DATE OF THE ANNUAL MEETING. AT THIS TIME, AS PROVIDED IN THE BY-LAWS, AN ANNOUNCEMENT CONCERNING THE ANNUAL MEETING AND REQUEST FOR TITLES OF PAPERS SHALL BE MAILED BY THE SECRETARY-TREASURER TO ALL MEMBERS OF THIS SOCIETY.

2. ON AND AFTER DATE ON WHICH THESE NOTICES ARE MAILED, TITLES WILL BE RECEIVED UNTIL FIFTY ARE IN HAND. IN THE FIFTY TITLES REFERRED TO, PROVISION SHALL BE MADE FOR THE PAPERS OF THE INVITED GUESTS AND PAPERS ON THE SUBJECT OF GENERAL DISCUSSION.

3. AFTER THE FIFTY TITLES ARE RECEIVED, THE PROGRAM COMMITTEE SHALL ARRANGE AND CLASSIFY THEM ACCORDING TO RELATED SUBJECTS.

ALEX. G. BROWN, Jr., Chairman,
A. L. GRAY,
P. W. HOWLE,
E. L. KENDIG,
B. R. TUCKER,
Committee.

The Standardization of Drugs Amid Changing Standards.†

Medical welfare is hampered in many ways by the machinations of the quack and the health imposter; likewise by the production and distribution of products that are below standard or utterly incapable of accomplishing what the unsuspecting user, be he layman or physician, may rightfully expect of them. Much of the valuable work of the Council on Pharmacy and Chemistry of the American Medical Association consists in revision—in promoting an up-to-date attitude toward well tested novelties in drugs, while preserving a justifiable conservatism toward the valuable contributions of the past. An illustration of the difficulties encountered is afforded by the recent experiences with cod liver oil. The product itself is no novelty, but some of its reputed virtues have been put on a more scientific basis in the last decade. The pharmacopeial standards have been found insufficient. Today it is standardized on its vitamin potency—and more recently on its antirachitic properties. Such tested cod liver oils are widely advertised and have been accepted for inclusion in New and Non-official Remedies by the Council on Pharmacy and Chemistry. Those who believe in keeping abreast of progress should, therefore, lend their enthusiastic support to agencies, such as the Council, that labor unselfishly for them.

†Propaganda for Reform, issued by Council on Pharmacy and Chemistry of the A. M. A.

The Photo-Activity of Substances Curative of Rickets.†

In addition to conspicuous changes in the composition of bones in rickets, disproportions occur in the concentration of calcium and phosphorus in the blood plasma. The chemical make-up of the latter is soon restored to a more normal character whenever effective antirachitic measures are instituted. Cod liver oil has this regulatory power in a striking degree. It is an extraordinary circumstance that a substance containing neither calcium nor phosphorus should have the power to cause the calcium or the phosphorus, as the case may be, to rise nearly to the level commonly regarded as normal. Furthermore, cod liver oil not only acts as a regulator of the calcium and phosphorus metabolism, but also permits the organism to operate with greatly increased economy. No less remarkable than the action of cod liver oil is the clearly demonstrated potency for this purpose of certain types of radiation, such as are present in direct sunlight and which emanate also from the quartz mercury vapor lamp. Because of the similarity of action of cod liver oil and radiant energy, it was predicted that a connection must exist between them. This relation has now been demonstrated. It has been shown that the chemical substances curative of rickets produce a blackening of sensitive photographic plates screened by quartz. Substances noncurative of rickets do not fog the plates. These phenomena are undoubtedly due to ultraviolet radiation. Thus oxidation appears to furnish the basis for the identical curative action of many substances and of sunlight in rickets.

Bottled Sunshine.†

It was demonstrated recently that sunlight or the radiations of the quartz mercury vapor lamp had the property of emitting ultra-violet rays in common with well recognized antirachitic food substances. Almost simultaneously, it was announced that irradiation of fats otherwise inactive in preventing rickets, caused them to become active and that rations which ordinarily produced wide rachitic metaphysis in the shaft bone of rats through irradiation, became antirachitic and promptly effected a rapid and complete healing of the lesion.

An Antidote for Arsenic, Bismuth, and Mercury Poisoning.*

Henry C. Semon, writing in the *British*

*Venereal Disease Information, published by U. S. Public Health Service.

Medical Journal, reported seven cases in which sodium thiosulphate given intravenously has proved an antidote for mercurial and bismuth stomatitis, and has counteracted the effects of acute arsenical toxemia. Doses of 0.45, 0.6, 0.75, and 0.9 gm. were employed. In some cases only one dose was necessary to relieve the condition.

Case I. *Bismuth Stomatitis.*—Jaundice developed during treatment; bismuth was substituted, and a course of intramuscular injections of trepol begun. After the fourth injection soreness of gums and salivation developed. Sodium thiosulphate was administered intravenously, 0.45 gm. followed two days later by 0.5 gm. Treatment was continued.

Case II. *Mercurial Stomatitis.*—Mercurial gingivitis developed after 3 injections of mercurial cream. Sodium thiosulphate in amounts of 0.45, 0.6, 0.75 gm. cleared up the fetor and salivation.

Case III. *Bismuth Salivation.*—Only 0.45 gm. of sodium thiosulphate was needed to clear up condition.

Case IV. *Mercurial Stomatitis.*—A woman developed severe gingivitis after taking hydrargyrum cum creta for about one month. Four doses of sodium thiosulphate relieved all symptoms.

Case V. *Arsenical Jaundice.*—After six intravenous injections of novarsenobillon given at intervals of three weeks jaundice developed. Intravenous injection of 0.75 gm. of sodium thiosulphate in 10 c.c of water was immediately given. Daily doses were continued for 10 days. Nausea and depression disappeared.

If actual tissue destruction has already occurred and so-called yellow atrophy of the liver has set in, improvement can not be expected. Therefore, early treatment is most necessary.

Case VI. *Acute Dermatitis After Two Sulpharsenol Injections.*—Following the second injection of 0.36 gm. of sulpharsenol intravenously, an acute irritable eruption appeared, mainly on the trunk and arms, resembling a serum urticaria. An injection of 0.5 gm. of thiosulphate was given at once. The following morning the pruritus had subsided; the dose was repeated. Slight desquamative reaction supervened 48 hours later; patient made an uninterrupted recovery in five days.

Case VII. *Mercurial Stomatitis and Eruption.*—In this case the condition followed the intravenous injection of one-sixteenth gr. of mercury perchlorid for severe septicemia. Because of the patient's dread of further injections, the thiosulphate was administered by mouth. The stomatitis began to improve at once and the rash showed signs of involution and began to desquamate slightly on the fourth day, but patient developed severe colic and the treatment was abandoned. This indicates that the intravenous route is more rapid and less toxic.

An additional case is cited to show that painful subcutaneous infiltration following an extravenous leak of novarsenobillon can be avoided by injecting instantly a solution of 0.75 gm. of sodium thiosulphate in 8 c.c. of distilled water, so as to mix with and dilute the novarsenobillon.

The Modern Therapy of Syphilis.*

The Canadian Medical Association Journal contains an article by H. C. Mersereau which states that arsphenamin and neoarsphenamin are high in trypanocide power; the therapeutic index is about the same, but neorsphenamin is more unstable. Sulpharsphenamin and gelatin arsphenamin have not yet been tried out sufficiently for a final decision but experiments indicate that these drugs may render treatment of syphilis simpler, quicker, and safer. Tryparsamide has a low therapeutic index but it is of value in the treatment of neurosyphilis on account of its greater power of permeating the tissues. Mercury in the form of mercurosal, administered intravenously, seems to be producing good results. Bismuth in the form of neotrepol has proved of value in Wassermann fast cases. How often the arsenicals are to be used and whether mercury should be administered at the same time are questions which are still debated.

Milk Injections in the Treatment of General Paralysis.*

The Budapest correspondent, to the London *Lancet*, says that Moravcsik, from experiments carried out in his psychiatric clinic, states that, in view of the results obtained, milk is the most efficacious of the nonspecific remedies, and that the results of milk injections were much superior to those obtained by antisyphilitic treatment in general paralysis of the insane.

The explanation, which is at present only theoretical, is that the efficacy of the treatment is due to leucocytosis, activation of the protoplasm, stimulation of antibody forming ele-

ments, increased transfusion, and hyperemia in the diseased foci.

On Transmission of Congenital Syphilis.*

L. F. Meyer, in *Monatschr. f. Kinderh.*, Leipzig, tells of a child who developed a syphilitic umbilical ulcer when six weeks old. In the German medical literature syphilitic umbilical ulcer is not acknowledged and, therefore, the diagnosis of diphtheria was suggested. Diphtheria bacilli, however, were absent and the induration of the borders of the ulcer and swelling of inguinal glands suggested syphilis. Typical spirochetes were then found in the umbilical smear. The Wassermann reaction so far had been negative. After another three weeks, bloody rhinitis, diffuse infiltration, swelling of the spleen, and dropping of the nasal ridge set in. The Wassermann reaction became positive in the eleventh week.

Hutinel and others in France have given credence to the existence of umbilical ulcer and Hutinel says that it may be the only symptom for a long time. Since the discovery of the spirochetes, prompt treatment is possible.

The author reports a total of five cases. He recommends microscopic examination for spirochetes in all cases where the navel is moist.

These cases are interesting from an etiological viewpoint. Three possibilities must be taken into consideration, germ transmission, infection *ex patre*, and placental transmission. The last theory at the present time has the most adherents. Rietschel is of the opinion that infection of the infant occurs most frequently during birth, and more particularly during expulsion, when the placenta tears and the maternal and fetal blood intermix. In 1903, Bondi described an infiltration of the vascular muscles with leucocytes. Inflammation in the fetal part of the umbilical cord he considers characteristic of syphilis. Grafenberg found spirochetes in the umbilical blood vessels.

The fact that this ulcer exists before other syphilitic symptoms suggests that the infection is not transmitted from child to mother, but from mother to child. The transmission may occur through transportation within the umbilical blood or the spirochetes travel in the lymph spaces of the umbilical cord.

The author does not consider umbilical ulcer a primary lesion on account of the rapid sequence of supervening symptoms. It is more probable that soon after the focal formation of the spirochetes a blood invasion takes place.

Wassermann Reaction in Different Social Classes.*

David L. Belding and Isabelle L. Hunter, in the *American Journal of Syphilis*, state that:

"The per cent of positives in Wassermann surveys in pregnant women varies from 3.05 to 31.11. This variation is due in part to differences in the social position, race, and nationality of the patients and in part to certain technical factors in performing the test.

"The results obtained by 24 investigators in routine Wassermann tests in 19,739 pregnant women, both negro and white, give an average of 9.8 per cent positive. Excluding the greater part of the negroes, 7.5 per cent were positive.

"In our series of 5,198 cases, which included 3.5 per cent negroes, 9.2 per cent were positive and doubtful and 7.8 per cent were definitely positive.

"Investigators with a larger number of cases as a rule report lower averages; eleven with more than 500 cases, 9.6 per cent positive, and thirteen with less than 500, 11.9 per cent.

"Serum positive syphilis is more prevalent in the lower class residential districts of Boston.

"Charity patients show a higher per cent of positives than patients who pay their own hospital bills.

"In general the prevalence of syphilis increases as the social scale of occupations decreases, except in the so-called upper middle class which in our series gives the highest per cent of positives.

"Owing to the greater proportion of unskilled labor, outdoor occupations show a higher per cent of positives than indoor.

"Syphilis seems more prevalent in some occupations, but small numbers and local conditions render any conclusions unwarranted."

On Specific and Nonspecific Treatment of General Paralysis.*

Franck. Schweiz, in *Med. Wchnschr.*, Basel, says that syphilis is generally amenable to treatment in most stages, but is not considered so when it has reach the cerebrospinal system in the form of general paralysis or tabes. A hematocephalic barrier is generally considered to exist. In certain pathological conditions this barrier is dropped and certain poisons which are normally rejected pass into the nervous system. This is the case in acute infectious dis-

eases, such as, diphtheria, tetanus, and tubercular meningitis. Chronic intoxications from alcohol, morphin, or arsenic, on the other hand, increase this hematocephalic resistance.

The fever inducing treatment has aimed at temporary lowering of the barrier. v. Wagner-Jauregg has tried erysipelas, typhoid, scarlet fever, pneumonia, inoculations in connection with mercury and arsenobenzene treatment. He has used malaria virus and tuberculin, Besredka antityphoid, and other vaccines, and subcutaneous injections of protein. The author's results with these inoculations have not been satisfactory. With v. Wasssermann and Takaki, who prepared 10 fatal doses of tetanic toxin and 1 c. m. rabbit brain emulsion, the author used antitetanic serum combined with specific treatment.

He treated 4 cases of general paralysis with undeniable clinical and serological improvement in one instance. In that case the Wassermann reaction was 3 plus and the Vernes test showed 1.50. Two other cases were somewhat improved serologically. In the fourth case there was no clinical improvement, but marked serological regression. Malaria can not be employed, as it is rare in Switzerland.

Bravais-Jacksonian Syphilis. Epilepsy, Quickly Suppressed by Treatment.*

Derville, in the *Jour. de. med. de Paris*, reports the case of a woman, aged 35, who had had syphilis for seven years. The cutaneous symptoms were erroneously diagnosed and gummata considered furuncles. Gummata of the scalp were called abscesses an incised. Six years after infection only was the suspicion of syphilis aroused and soon confirmed by the Wassermann test. An ulcerating gumma of the scalp reached dwon to the bone of the skull in the right Rolandic region. The probe did not, however, penetrate the skull. The effect of treatment was marvelous. She was given 2,400 drops tincture of iodin, bismuth (17 injections Quinby), arsenic (7.10 gms. of 190), simultaneously. At first the seizures involved the entire left side and then were restricted to the extremities. Next the abdomn and lower extremities only, and later only portions of them were involved. There was an inverse relation between the doses given and the extent of the convulsions. Improvement was lasting. After several months there was not the slightest nervous symptom. Arsenical intoxication was unavoidable in this necessarily rapid cure. It, however, was restricted to cutaneous manifestations.

News Notes

Christmas Greetings to all our Readers

and

Best Wishes for a Happy and Prosperous 1925

The Annual Conference of Secretaries of Constituent State Medical Associations

Was held at the headquarters of the American Medical Association, Chicago, November 21st and 22nd. Editors of the State journals were also invited and twelve availed themselves of the opportunity to attend. The general officers and members of the Board of Trustees were present and several addressed the meetings. Dr. E. A. Hines, of South Carolina, as chairman, and Dr. T. B. Trockmorton, of Iowa, as vice-chairman, presided over the sessions.

The paper on "A Definite Program for 1925," presented by Dr. F. C. Warnshuis, of Michigan, received much favorable comment and was referred to a committee for action on the suggestions offered. A topic especially stressed in this paper was "Acquaintanceship" with the County organization, the State Society, and the American Medical Association, that doctors might have a better understanding of the organizations and the benefits to be derived from fellowship in them.

Several speakers urged that the subject of periodic, or birthday, health examinations of the well receive greater attention. As a means to popularizing this movement, one society offered to make a physical examination, at its annual meeting, of the first one hundred of its members applying.

"*Hygeia*," the laymen's health magazine published by the A. M. A., received much favorable comment and was endorsed as a means of educating the public in matters pertaining to health.

Workmen's Compensation Laws as they affect the doctor and the workman, and graduate extension work were among other subjects discussed.

On the first evening, an editorial "round table" was held at a large table especially prepared during the dinner hour and this proved an interesting feature to those representing the State journals.

The Board of Trustees of the American Medical Association met on this occasion also, and made the following appointments:

General Manager of the Association: Dr. Olin West.

Editor of the *Journal of the A. M. A.*: Dr. Morris Fishbein.

Business Manager of the Association: Mr. Will C. Braun.

The Southern Medical Association

Held its eighteenth annual meeting in New Orleans, La., November 24 to 27, inclusive, under the presidency of Dr. Charles L. Minor, Asheville, N. C. There was an attendance of about 2,500 and the meeting was a pronounced success, scientifically and socially. Virginia was represented officially by Dr. A. L. Gray, of Richmond, at the complimentary dinner given presidents and secretaries of State Medical Associations and State Health Officers, on Tuesday evening, the 25th.

One of the most important measures adopted at this meeting was the authorization of a Section on Gastro-Enterology which will take the place of the Southern Gastro-Enterological Association which has been an affiliated organization of the Southern Medical Association.

Dallas, Texas, was selected as the meeting place for 1925, and the following officers were elected: President, Dr. Stewart R. Roberts, Atlanta, Ga.; vice-presidents, Dr. Robt. H. McGinnis, Jacksonville, Fla., and Dr. Homer Dupuy, New Orleans; secretary-manager, Mr. C. P. Loranz, Birmingham, Ala.; editor of the journal, Dr. M. Y. Dabney, Birmingham, Ala.; new councilors, Dr. Edward H. Cary, Dallas, Texas, Dr. W. S. Leathers, University, Miss., and Dr. Charles L. Minor, Asheville, N. C.

The Gorgas Memorial.

During the past year, throughout the United States, the work of organizing the Gorgas Memorial State Governing Committees has been progressing. In some states the response has been most enthusiastic, while in others considerable effort has been necessary to bring home to the doctors, the importance of this movement to them, individually and collectively. Inasmuch as the Gorgas Memorial is primarily a medical movement and as such must have the united support of the profession if it is to make the proper impression on the general public, we take this occasion to outline briefly the Gorgas plan and to request the co-operation of our colleagues in bringing to a successful issue, this national health program.

It is planned to establish a memorial for our former chief Major General William Crawford Gorgas, which will be a permanent living organization in the form of a great health foundation typical of his work in research and curative medicine, that will unite laymen and doctors in an intelligent effort to obtain better personal health—a health guild that will be supported and directed by the representatives of curative medicine.

The Gorgas Memorial consists of two phases:

1. An Institute in Panama for research in tropical diseases.

2. A health educational program in the United States and other countries that wish to co-operate and participate in the movement.

This is an age when people are knocking at all doors of knowledge and demanding that they be admitted. In the field of medicine who are so well fitted to meet this demand as those actually engaged in the practice of medicine? Doctors have a far more interesting and important message to deliver than any other group. Public ignorance is encouraged by professional reticence and the result is the astounding growth of unscientific methods. If the profession is to maintain the high standing to which centuries of labor in behalf of suffering mankind entitles it, it is essential that a definite organized effort be made to familiarize the public with such facts as will impress upon it the importance of medicine's contributions to human welfare. A constant fund of proper health information through the newspapers, magazines, lectures, moving pictures and the radio, furnished by medical men and women of known reputation and standing, will direct the public to the proper source for medical advice and gradually eliminate the irregular practices constantly increasing. One of the objects of the Gorgas Memorial is to furnish a channel through which this kind of information may be disseminated. It cannot be done by individual physicians. It must be conducted by a dignified, ethical organization, controlled by the medical profession.

Governing committees are now in process of

organization, on the basis of 100 members to every 1,000,000 population in each state; seventy-five per cent of the personnel of each committee wil consist of medical men and twenty-five per cent of influential laymen and women. The permanent activities of the organization will be supervised by these Committees in their respective states, in co-operation with the National Executive Committees.

The organization is endeavoring to raise an Endowment of $5,000,000, the interest only of which will be utilized to carry on the work. The principal will be invested in trust securities and remain intact. None of the money thus obtained will be spent for buildings or equipment. The Republic of Panama has donated the site and guaranteed the initial buildings and equipment for the tropical research laboratories, in recognition of Gorgas' work in Panama. Those invited to serve as Founder members of the State Governing Committees are requested, as they accept membership on the Commitee, to subscribe $100 to the Endowment Fund, payable within two years. Every individual on the State Committee is a contributing member. When the medical nucleus of the organization is complete, a general appeal for funds will be made to the public.

The Memorial has been endorsed by the American Medical Association and by numerons other medical and civic organizations. Every doctor is requested to take a personal interest in the Gorgas program and to see that his community is adequately represented on the State Governing Committee. This is one foundation that is controlled by the practitioners of curative medicine and as such should be supported by every practicing physician.

President Calvin Coolidge, is Honorary President, and Dr. Franklin Martin, Chicago, Vice-President. Executive offices of the Gorgas Memorial are at 410 North Michigan Ave., Chicago, Illinois.

The Association of Surgeons of the Chesapeake & Ohio Railway

Held its annual meeting at White Sulphur Springs, W. Va., November 7-8, with its usual good attendance and excellent scientific program. Officers elected for the ensuing year are: President, Dr. L. L. Bigelow, Columbus, O.; vice-presidents, Drs. R. J. Wilkinson, Huntington, W. Va.; Eric R. Twachtman, Cincinnati, O.; and Horace L. Goodman, McKendree, W. Va.; secretary-treasurer, G. H. Meanley, Richmond, Va. Members of the Executive Committee for the year are: Drs. W. E.. Vest, Huntington, W. Va.; E. H. Griswold, Peru, Ind.; R. S. Griffith, Basic City, Va.; W. R. Laird, Montgomery, W Va.; Chas. C. Garr, Lexington, Ky., and R. Finley Gayle, Richmond, Va.

Dr. Martin B. Hiden,

Of the class of '11, University of Virginia, has located at Waterford, Va., where he is engaged in the practice of his profession.

Dr. E. M. Magruder,

Charlotttsvile, Va., was again named head of the Clan MacGregor, which held its annual reunion in Washington, D. C., in November.

Dr. R. W. Fowlkes,

Richmond, Va., was elected a member of the board of directors of the University Club, this city, at its annual meeting last month.

A Good Xmas Present.

What better present could the doctor give his patient at the Xmas season than a subscription to *Hygeia*, the magazine published by the American Medical Association, which is devoted to "individual and community health?" It costs only $3.00 a year and gives authoritative information to the public about matters of health—just what you want your patient to have.

Your orders sent to the office of the Medical Society of Virginia, 104½ West Grace Street, Richmond, Va., will receive immediate attention.

Soldiers' Memorial.

Watertown, Mass., plans to erect a health building as a memorial to its men who served in the world war. This building will house the local Red Cross Chapter, and provide space for tuberculosis, child welfare, dental and other clinics.

Physical Examination of Child Workers in Milwaukee.

Milwaukee requires that every child entering industry permanently must be given a physical examination. If physical defects are found a permit is issued on the understanding that the defects will be corrected and that the child will report for re-examination.

According to the Wisconsin Industrial Commission, of the 2,507 Milwaukee children receiving permits for first full-time employment

during the year 1923-24, only eighteen per cent were classed as sound and free from physical or health defects.

Getting Ready for School.

California believes in getting children physically ready for school and in twenty of her fifty-eight counties is giving physical examinations to pre-school children. The State board of health, the State board of education, women's clubs and other organizations, local doctors and nurses are all helping in this work.

Married.

Dr. Henry S. Stern and Miss Adele Lewit, both of Richmond, Va., November 19th.

Dr. Joseph L. Wright, Harrisonburg, Va., and Mrs. Anne Blackburn Hall, Roanoke, Va., November 22nd.

Dr. Carter Nelson Berkeley, Richmond, Va., and Miss Frances Elizabeth Cobb, Stony Creek, Va., November 26th.

Alumni Chapter of M. C. V. in New York City.

An alumni chapter of the Medical College of Virginia has been formed in New York City, with Dr. I. S. Tractenberg, Brooklyn, of the class of '13, as president. There are approximately sixty alumni of the Medical College of Virginia in and around New York City and it is believed this organization will be an active one.

The American Association for the Advancement of Science

And its associated organizations will hold their annual meeting in Washington, D. C., December 29, 1924-January 3, 1925, inclusive.

Heads Department of Medicine at Tulane University.

Dr. John H. Musser, Jr., who has been assistant professor of medicine at University of Pennsylvania School of Medicine, Philadelphia, has been appointed professor and head of the department of medicine at Tulane University School of Medicine, at New Orleans, La. He will succeed Dr. George S. Bel, resigned.

To Alumni of N. Y. Skin and Cancer Hospital.

Graduates of this Post-Graduate school are requested to send their present professional office address to the secretary of the re-organized Alumni Association, Dr. Harman Goodman, 15 Central Park West, New York City.

Dr. Tom A. Williams,

Washington, D. C., after atending the meeting of the Southern Medical Association in New Orleans, went to Miami, Fla., where he will spend the winter. He will not return to Washington until April 1st.

Dr. Kenneth W. Kinney, of the Calverton Apartments, who is associated with Dr. Williams, will have complete charge of the work until Dr. Williams' return.

A Useful Book in Prescribing Diets.

The Charles B. Knox Gelatine Company, Johnstown, N. Y., has prepared a book of dietetically correct recipes with gelatine for patients on diet and will mail a copy postpaid and free of charge to any physician or dietitian requesting it.

Dr. H. S. Belt,

South Boston, Va., recently visited his son who is at school in Lynchburg, Va.

Dr. and Mrs. Robert S. Preston,

Richmond, are home again after a visit to New York City.

Dr. E. M. Chitwood,

Wytheville, Va., has been recommended for appointment as a captain in the medical corps, Virginia National Guard, with authority to organize a medical detachment of the 116th infantry in that city.

Doctors Enjoy Hunting Season.

Drs. H. M. DeJarnette and C. Mason Smith, of Fredericksburg, Va., have been enjoying duck hunting on the Rappahannock River.

Dr. G. B. Barrow, Clarksville, Va., has been doing some hunting with friends at a hunting camp on Roanoke River.

Fire at Glenwood Park Sanitarium.

Glenwood Park Sanitarium, Greensboro, N. C., was visited by fire about noon, November 30th, and suffered a property loss of about $15,000. All patients were safely removed from the burning building.

Dr. C. E. Foley,

After spending some time in Washington, D. C., announces that he has located in Raleigh, N. C., where he is connected with the Gibson Eye, Ear, Nose and Throat Clinic.

Dr. and Mrs. H. T. Hopewell,

Strasburg, Va., recently motored to Lexington, Va., for a visit to their son at the Virginia Military Institute.

Dr. and Mrs. Millard Saunders,

Norfolk, Va., were recent visitors at Arvonia, Va.

Campaign Against Rickets.

Cod-liver oil was found helpful in preventing rickets among Italian babies of the Mulberry district in New York City. In this district the city bureau of child hygiene and the Association for Improving the Condition of the Poor found that fully one-fourth of the children of pre-school age were suffering orthopedic defects, due largely to rickets in babyhood. One hundred and fifty babies between three and nine months old were brought to a clinic and given follow-up care by its nurses. An effort was made to see that these babies received cod-liver oil regularly during a period of four months. At the end of the experiment, it was found that seventy-one per cent of the babies who took the oil regularly showed no signs of rickets, whereas only thirty per cent of the babies who did not receive the oil were free from the disease.

U. S. Civil Service Examinations.

The U. S. Civil Service Commission, Washington, D. C., announces open competive examinations for Medical Officer, Junior Grade, entrance salaries up to $2,000; Medical Officer, Grade A, entrance salaries up to $3,250; Medical Officer, Grade B, entrance salaries up to $4,250. The examinations are open to both men and women, citizens of the United States, who meet requirements. Applications will be rated as received until hour of closing business December 30, 1924, unless sufficient eligibles are obtained before that time.

Buy Christmas Seals!

The seventeenth annual Christmas Seal Sale is now on. Seventeen million Christmas seals have been distributed in Virginia. Last year, total sales in this State were $57,463.44. This money is used to maintain free tuberculosis clinics: public health nurses; indigent patients at sanatoria; and for preventive work among children, such as the fresh air classes, nutrition classes, summer camps, etc. There are about 26,000 active cases of tuberculosis in Virginia.

Help fight the "white plague" in Virginia by buying Christmas seals NOW.

Promotions in Medical Service of Military.

Dr. Ernest T. Trice, Richmond, has been named major-surgeon of the 246th Coast Artillery, to succeed Major Waller N. Mercer, who has been transferred to the Medical Officers' Reserve Corps.

Dr. John O. Boyd,

Roanoke, Va., was recently elected vice-president of the Kiwanis Club of that city.

Dr. T. S. Richardson,

Waynesboro, is one of the many Virginia doctors who has enjoyed hunting this Fall.

World's Need for Opium and Other Drugs Tabulated.

A report made at the second opium conference at the League of Nations shows the amounts of opium and its equivalents used in the principal nations of the world. Reports of twenty-five nations, representing a total population of approximately 745,000,000, show the total estimated requirements are 551,548 kilos. The estimated average requirement per capita varies from 1.2 grams in Switzerland to .03 grams in Haiti. The average requirement per capita for all nations is a little more than .4 grams per year.

India's requirements are the greatest of all the nations, totaling 364,800 kilos, while the United States is second with a total requirement of 61,818 kilos. The requirements per capita in the United States, however, are not so great as in some countries.

The purpose of the work of the opium conference of the League of Nations is to control by mutual agreement and international cooperation the production, manufacture and distribution of opium, morphine and other drugs of a similar nature.

Industrial Blindness.

The report of the National Committee for the Prevention of Blindness on eye hazards in industrial occupations shows that of 100,000 blind persons in the United States approximately 15,000 are the industrial blind and that there are approximately 20,000 industrial accidents resulting in injuries to the eyes each year. It has been found out that many of these accidents could be easily prevented on the one hand by employers through more thorough provision of safety devices, safety education and supervision of operations, and on the other hand by employees through more conscientious use of the safeguards provided by progressive employers.

Dr. J. Thomson Booth

Has returned to his home in Ashland, Va., after a visit to Norfolk, Va.

Medical College of Virginia Celebrates its Birthday.

On December the 1st, the Medical College

of Virginia, Richmond, celebrated its eighty-seventh birthday with appropriate exercises in the Egyptian Building known as the "old college," on Thirteenth and Marshall Streets. Dr. Stuart McGuire, president of the college presided and introduced the two speakers, Governor Trinkle, who gave a short talk and Dr. Douglas Freeman, who reviewed the history of the college from the time it was authorized as an independent college by the board of trustees of Hampden-Sidney College, on December 1, 1837. By an act of the General Assembly of Virginia, in 1854, the college ceased to function as the medical department of Hampden-Sidney College and was incorporated under the name of the Medical College of Virginia.

It was cited that this was the only college in the South which maintained its course in medical instruction for the entire period of the War betwen the States. In 1913, the University College of Medicine and the Medical College of Virginia were consolidated under its present name, and the school has continued to grow in usefulness. A large number of physicians, dentists, pharmacists and nurses are graduated from the institution each year. More than 4,500 have received their training in the two schools and it is stated that about 3,000 of these are now living.

Dr. and Mrs. William M. Smith

Have closed their home near Berryville, Va., and are spending the winter in Richmond.

Dr. Garnett Loses Home by Fire.

Dr. R. W. Garnett, health officer of Danville, Va., lost his home by fire, on the night of November the 22nd, and was painfully burned in trying to extinguish the flames.

Dr. W. W. Chaffin

Returned to his home in Pulaski, Va., the latter part of November, after spending several weeks at St. Luke's Hospital, Richmond.

The International Clinic of Oto-Rhino-Laryngology and Facio-Maxillary Surgery

Has sent out announcements for its graduate instruction at St. Louis Hospital, Paris, France. The instruction is to be given by a staff of eminent practitioners in Paris, as well as by masters invited from various countries to lecture on their particular specialties, and it is stated that the lectures will be given in English. At the same time, the student may become acquainted with foreign customs of practice as well as the languages and literature of Europe.

Dr. R. W. Vaughan,

After spending sometime at Statesville, N. C., has returned to Richmond and is located at 3616 Seminary Avenue.

Medical Interne (Psychiatric) Wanted.

Applications for this position will be rated as received by the U. S. Civil Service Commission, Washington, D. C., until June 30, 1925. The examination is to fill vacancies in St. Elizabeths Hospital, Washington, D. C., at an entrance salary of $1,860 a year. Applicants must be senior students in, or graduates from recognized medical colleges not earlier than 1920, unless they have been continuously engaged in hospital, laboratory, or research work along the lines of neurology or psychiatry since graduation. Applicants will be rated on their general education, technical training, and experience, and will not be required to report for examination at any place.

Several Richmond Doctors Ill.

Dr. J. N. Upshur, who has been ill at his home, was reported not quite so well as we go to press.

Dr. J. Allison Hodges continues critically ill at Stuart Circle Hospital, this city.

Dr. Ben H. Gray is much improved after a severe illness from pleurisy and returned to his home from the hospital the latter part of November.

Dr. B. B. Bagby, of the city Bureau of Health, recently spent several days at Woodville, Va., recuperating from an attack of influenza.

Dr. Virginius Harrison is slightly improved after having been confined to his home by sickness.

Dr. Horace G. Longaker

Has been appointed acting health officer of Newport News, Va., succeding Dr. Coleman B. Ransome who resigned to accept the position as health officer of Roanoke, Va.

Dr. Watson S. Rankin,

Secretary of the North Carolina State Board of Health, who was granted a year's leave of absence to work in connection with the International Health Board of New York, has returned to Raleigh and taken up his work with the State Board of Health.

That Golden Rod Slip!

Members of the Medical Society of Virginia, won't you look for the slip in this journal and give it your attention? The co-operation of

our members at all times has been greatly appreciated and we feel confident of your continued good will.

It may not be amiss to call attention to our advertisers. They are all A-1 and your interest in and support of them is of benefit to them and your journal.

Dr. W. T. Graham,

Richmond, has been elected to membership in the Virginia Alpha Chapter, mother of all Phi Beta Kappa chapters, and was among those to receive key at its annual celebration at William and Mary College, Willamsburg, Va., on December 5th.

Rear Admiral Stitt to be Reappointed Surgeon General of Navy.

Just before Congress convened, it was announced that President Coolidge would send to the Senate his renomination of Rear Admiral Edward R. Stitt as Surgeon General of the U. S. Navy, which is practically synonymous with his reappointment.

School Examiners in West Virginia.

Drs. Samuel H. Burton and George M. Burton, of Weston, W. Va., have been appointed school examiners for the independent districts of that city.

The Society of Neurological Surgeons

Held its semi-annual meeting in Richmond, December 5th and 6th, under the presidency of Dr. Charles A. Elsberg, of Columbia University, New York. About twenty prominent brain specialists attended this meeting. Clinics were held at Memorial Hospital by Dr. C. C. Coleman, Richmond member. The next meeting will be at Columbia University, New York, in June. Dr. Elsberg remains president and Dr. Ernest H. Sachs, of Washington University, St. Louis, secretary.

Dr. William H. Parker,

Richmond, Va., has been elected by unanimous vote as supervisor of athletics at the Medical College of Virginia, of which school he is an alumnus.

Dr. and Mrs. W. Tilden Smith,

Norfolk, Va., were recent visitors at Saluda, Va.

Dr. and Mrs. Beverley R. Tucker

Have returned to their home in Richmond, after a visit to Florida.

The American Board of Otolaryngology

Was organized in Chicago on November 10th, with Dr. Harris P. Mosher, Boston, president, and Dr. Hanau W. Loeb, St. Louis, secretary and treasurer. The office of the Board is at 1402 South Grand Boulevard, St. Louis, Missouri. The board comprises representatives of the five national otolaryngologic associations: the American Otological Society, the American Laryngological Association, the American Laryngological, Rhinological and Otological Society, the American Academy of Ophthalmology and Otolaryngology and the Section of Laryngology, Otology and Rhinology of the American Medical Association.

The object of the association is to elevate the standard of otolaryngology, to familiarize the public with its aims and ideals, to protect the public against unqualified practitioners, to receive applications for examination in otolaryngology, to conduct examinations of such applicants, to issue certificates of qualification in otolaryngology and to perform such duties as will advance the cause of otolaryngology. The first examination will be held at the time of the meeting of the American Medical Association.

Japan and Child Labor.

A recent communication from Japan to the U. S. Department of State announces that Japan has ratified the draft convention adopted by the International Labor Conference of 1920, prohibiting the employment of children under fourteen on vessels, and also a draft convention adopted in 1921 providing for compulsory medical examination of minors under eighteen employed on vessels.

Acting Dean of Department of Medicine, U. Va.

Dr. James Carroll Flippin, professor of clinical medicine at the University of Virginia, has been appointed acting dean of the Department of Medicine, at the University of Virginia, for the session 1924-1925, to succeed Dr. Theodore Hough who died recently.

Physician Wanted.

Good location in small town on Southern railroad, for price of property. Address "M," care this journal. (Adv.)

Wanted.

Interne for small hospital. Write qualifications, experience, and salary expected in first letter. Address Box 359, Martinsville, Va. (Adv.)

Obituary

Dr. Theodore Hough,

Dean of the Medical Department of the University of Virginia and well known teacher and author, was found dead in his office on November 30th, death being due to heart trouble. Dr. Hough was born in Front Royal, Va., June 19, 1865. He studied at Johns Hopkins University, Baltimore, from which he took his Ph.D. degree in 1893. He then taught in several schools in Boston, Mass., until 1907, at which time he was elected professor of physiology and biochemistry at the University of Virginia and, upon the death of Dr. Richard Whitehead, he became dean of the medical department of the University. Dr. Hough had been an associate member of the Medical Society of Virginia since 1908. He held membership in a number of scientific and educational societies and in 1922 was president of the Association of American Medical Colleges. He is survived by his wife, formerly Miss Nellie Whitehead, of Richmond.

Dr. Hermann Boerhaave Anderson,

The oldest and one of the most prominent practicing physicians of Hanover County, Va., died November 17th, at his home at Noel, following a stroke of paralysis on the 7th of the month, from which he failed to rally. Dr. Anderson was a native of Hanover County and sixty-eight years of age. He graduated from the Medical College of Virginia in 1882 and had been a member of the Medical Society of Virginia since 1908. He had been superintendent of the Sunday School of the Baptist Church near his home for many years. The interment was in Hollywood Cemetery, Richmond. Dr. Anderson is survived by his wife and several sons and daughters.

The Hanover County Medical Society met on November 18, and passed the following resolutions on Dr. Anderson's death:

Resolutions on Death of Dr. Anderson.

Whereas, Dr. Hermann B. Anderson, of Noel, Va., was the oldest practicing physician in Hanover County, and, whereas, Dr. Anderson has endeared himself to the people of Hanover and to his colleagues of the medical profession by his long term of faithful service and brotherly counsels, and, whereas, it has pleased the Supreme Powers to withdraw our colleague from the scenes of his temporal activities; therefore,

Be it Resolved, That this gathering of physicians do offer his family their heartiest sympathies and hereby make known to them their desire to be of service in some way to them in their hour of trial.

Be it Resolved, further, That it is the consensus of opinion of this gathering of physicians that the citizenship of the county has sustained a heavy loss and that the ranks of the medical profession have been weakened by the passing of this spirit back to its Creator.

And be it Resolved, That these resolutions be spread upon the minutes of this Society, a copy be sent to the bereaved family of our deceased colleague, and the same be published in the county paper and State Medical Journal.

Hanover County Medical Society,
T. J. Stanley, *President.*
J. A. Wright, *Sec'y.-Treas.*

Dr. James Adolphus Rice,

Heathsville, Va., died suddenly November 18th, presumably of cerebral hemorrhage, as he was putting his automobile in his garage. He was fifty-eight years of age and a graduate in medicine from the University of Virginia in 1901. Dr. Rice had been a member of the Medical Society of Virginia for a number of years and was actively identified with the medical interests of his community. His funeral was conducted with Masonic honors. His wife and a daughter survive him.

Dr. Charles Minor Blackford, II.,

Staunton, Va., was found dead in his office, on the afternoon of November 6th. He was fifty-nine years of age and a graduate in medicine from Columbia University Medical School, after which he studied in Vienna. Owing to impaired health, however, he had not practiced his profession for many years. He was for a number of years connected with the research department of the U. S. Fisheries Commission. Dr. Blackford was a versatile writer and will be remembered for the interesting articles he wrote on Staunton and vicinity prior to our recent meeting in that city. A son survives him.

Dr. John Bingham Roberts,

Philadelphia, emeritus professor of surgery at Jefferson Medical College, and an ex-president of the American College of Surgeons, died November 28th as a result of injuries received a month ago when he was struck by an automobile. He was seventy-two years of age and had graduated in medicine from both the Jefferson Medical College and the University of Pennsylvania.

Dr. Branch Tucker Fields,

Greensboro, N. C., died October 23rd, from heart disease. He was thirty-eight years of age and a graduate from the University College of Medicine, Richmond, in 1912. Dr. Fields was connected with the staff of St. Leo's Hospital, Greensboro, and was a member of the Medical Society of the State of North Carolina.

Plan Now to Get 7%

on Your January Funds

JANUARY is the month in which sound investments are in greatest demand--and sometimes hardest to get at attractive rates of interest. Yet many investors put off until the last moment the selection of investments for their January funds.

As a result it frequently happens that they are unable to obtain the issue, the maturity and the interest rate which they all along have had in mind.

Do not make this mistake with your January funds. Plan now to take advantage of the 7% return on current offerings of strongly secured First Mortgage Bonds that have behind them our record of **no loss to any investor in 51 years.**

At present we have a selection of 7% bonds available in maturities ranging from 2 to 15 years, and denominations of $100, $500 and $1,000. You may reserve one or more of these bonds now, and arrange the payment without additional cost when your January funds are in hand.

The Modern Way of Saving at 7%

Instead of only 3% or 4% on your savings, get the full rate of bond interest by using our Investment Savings Plan. Do not wait until you have saved the full price of a bond, but start your money earning 7% immediately.

Descriptions of several current offerings of Smith Bonds and a copy of our booklet, "Half a Century of Investment Safety in the Nation's Capital," will be sent to you promptly upon receipt of the accompanying coupon. Mail it today.

SMITH BONDS ARE SAFE BONDS

The F. H. SMITH CO.

Founded 1873

SMITH BUILDING WASHINGTON, D. C.

CLIP COUPON HERE

THE F. H. SMITH COMPANY, 47R
Smith Building, Washington, D. C.

Please send me descriptions of current offerings of your First Mortgage Bonds that may be reserved for January investment at 7%. Also your booklet, "Half a Century of Investment Safety in the Nation's Capital."

Name .....

Address .....

Aquascutum Ltd. REGISTERED

AN ENGLISH GREAT COAT —Cravenetted.

¶ IDEAL FOR PHYSICIANS.

Hanan Shoes

O. N. Berry & Co.
ESTABLISHED 1879
RICHMOND, VA.

Dunlap Hats

VIRGINIA TRUST COMPANY
RICHMOND, VA
THE SAFE EXECUTOR

Capital $1,000,000 Surplus Earned $1,000,000

ESTABLISHED 1892

To act as Executor, Guardian and Trustee
$25,000,000
of investments held in Trust

Confidential Interviews Invited.

DOCTORS administer to the sufferings of the living and bring them comfort.

THIS BANK administers to the estates of the dead and brings to them protection and economical administration.

Let us have your will prepared without cost to you.

MERCHANTS NATIONAL BANK
RICHMOND, VIRGINIA

Capital, Surplus and Undivided Profits over $2,400,000.00

"SAFEST FOR TRUSTS"

THIS IS JANUARY 1925 ISSUE BUT, BY ERROR OF PRINTER IT WAS PRINTED DECEMBER 1924

Virginia Medical Monthly

OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

Vol. 51, No. 10.
WHOLE No. 871.

RICHMOND, VA.; [redacted]

$2.00 A YEAR
20 CENTS A COPY

CONTENTS.

ORIGINAL COMMUNICATIONS:

Endocrinology: Its Relation to Internal Medicine. William B. Porter, M. D., Roanoke, Va. ---------- 595

Endocrinology: Its Relation to General Surgery. P. W. Boyd, M. D., F. A. C. S., Winchester, Va. ---------- 599

Endocrinology: Its Relation to Pediatrics. W. L. Harris, M. D., Norfolk, Va. ---------- 601

Endocrinology: Its Relation to Gynecology. Stephen H. Watts, M. D., F. A. C. S., University, Va. ---------- 602

Endocrinology—Its Relation to Radiology. Daniel D. Talley, Jr., M. D., Richmond, Va. ---------- 608

Endocrinology: Its Relation to Neurology and Psychiatry. John J. Giesen, M. D., Radford, Va. ---------- 612

Endocrinology: Its Relation to Therapeutics. L. E. Stubbs, M. D., Newport News, Va. ---------- 614

Menopause and Climacteric. John N. Upshur, M. D., Richmond, Va. ---------- 620

Report of Septic Cases Treated With Bichloride of Mercury Intravenously. R. Bruce James, M. D., Danville, Va. ---------- 625

The Incidence of Diseases of the Lower Air Passages Secondary to Infections in the Upper Respiratory Tract. T. Dewey Davis, M. D., Richmond, Va. ---- 627

Myocardial Disease and Surgical Conditions of the Abdomen. J. Morrison Hutcheson, M. D., Richmond, Va. ---------- 630

Treatment of Hypospadias—Analysis of Twenty-Eight Cases. Charles Y. Bidgood, M. D., Richmond, Va.--- 634

Some Anatomical Characters of the Mongolian Imbecile. R. Bennett Bean, M. D., University, Va. ---------- 642

The Roentgen Rays in Urology. James W. Hunter, Jr., M. A., M. D., Norfolk, Va. ---------- 644

Radical Surgery of the Maxillary Sinus—Study of Twenty-Six Post-Operative Cases With Special Reference to Dental Injury. E. T. Gatewood, M. D., F. A. C. S., Richmond, Va. ---------- 647

Blocking Puerperal Sepsis. Stephen Harnsberger, M. D., Warrenton, Va. ---------- 651

PROCEEDINGS OF SOCIETIES ---------- 653

THE TRUTH ABOUT MEDICINE ---------- 654

EDITORIAL ---------- 657

NEWS NOTES ---------- 659

OBITUARY ---------- 665

INDEX OF ADVERTISERS—Advertising Page 5.
(For Society Announcements, see page 32).

CALCREOSE

CALCIUM AND TUBERCULOSIS

CALCIUM starvation has been suggested by phthisiologists as a factor in the etiology of pulmonary tuberculosis. By prescribing **CALCREOSE** some of the needed calcium may be supplied.

CALCREOSE (calcium creosotate) is a mixture containing in loose chemical combination approximately equal weights of creosote and lime. It has the pharmacologic activity of creosote as used in the adjuvant treatment of tuberculosis, but differs from creosote in that it apparently does not have any untoward effect on the stomach.

POWDER—TABLETS—SOLUTION

Samples of Tablets on Request

THE MALTBIE CHEMICAL COMPANY

Newark, New Jersey

INFANT DIET MEAD'S MATERIALS

INFANT FEEDING

THE PHYSICIAN HIMSELF is the most important factor in the successful feeding of infants.

BUT TWO OTHER FACTORS ENTER into the equation—

THE MOST IMPORTANT BEING the physician's control of the case;

AND NEXT IN IMPORTANCE the reliability of his infant diet materials.

MEAD'S INFANT DIET MATERIALS satisfy this last requirement. They are as reliable as it is possible for us to make them;

BUT THEIR INDIRECT INFLUENCE on the other requirement, the doctor's control over the feeding case, is even of greater value.

MEAD'S INFANT DIET MATERIALS are marketed to the laity only on the physician's prescription—No feeding directions accompany trade packages—The mother gets her information only from the doctor who changes the feedings from time to time to meet the nutritional requirements of the growing baby. *He therefore CONTROLS the case.*

THE PHYSICIAN can, with three MEAD diet materials, plus his skill and his control, satisfy the nutritional requirements of nearly all infants entrusted to his care.

MEAD'S DEXTRI-MALTOSE (carbohydrate) cow's milk and water, combined in proportions to suit the individual baby, meets successfully the requirements of most infants.

FOR OTHER INFANTS where additional carbohydrate is not indicated but additional protein is indicated (such as in Diarrhoea, Marasmus, Colic in breast-fed infants, etc.), the use of CASEC (protein) in the cow's milk modification gives gratifying results.

MEAD'S COD LIVER OIL, a standardized antirachitic agent of known potency, protects all infants, whether breast or bottle fed, from Rickets and can be given in such small doses as not to upset the fat proportion of the baby's diet.

Samples and literature describing these three diet materials

MEAD'S DEXTRI-MALTOSE · MEAD'S STANDARDIZED COD LIVER OIL
MEAD'S CASEC *Sent at the physician's request*

MEAD JOHNSON & COMPANY
MAKERS OF INFANT DIET MATERIALS
EVANSVILLE, INDIANA, U. S. A.

MEAD'S DEXTRI-MALTOSE

Virginia Medical Monthly

Official Organ of the Medical Society of Virginia

Vol. 51, No. 10.
WHOLE No. 871.

RICHMOND, VA., JANUARY, 1925

20 CENTS A COPY
$2.00 A YEAR

Original Communications

ENDOCRINOLOGY: ITS RELATION TO INTERNAL MEDICINE.*

By WILLIAM B. PORTER, M. D., Roanoke, Va.

The opening discussion of a subject such as endocrinology should logically embody a review of the actual status of the field as applied to the general domain of medicine. In the present instance, this review assumes almost the importance of a duty, in view of the fact that at no time in its history has endocrinology stood in a more precarious condition.

The profession at large has been practically divided into two camps: the ultra-conservative, who are with just cause disconcerted by the maze of groundless and unsupported theories with which the whole subject has been surrounded in recent years; and the over-confident, who are the authors of these unwarranted theories, and, who administer organic products in practically all disorders without any regard for physiologic effects. Their over-enthusiasm may be attributed to the absence of any concrete knowledge concerning the role of these organs themselves in the body. It is encouraging and refreshing, however, to know that there exists a third class who occupy the moderate zone, hence, the choice of this subject for discussion by this body.

In a recent communication from one of the largest manufacturers of endocrine products in America, a conservative estimate is given of six millions of dollars spent annually in the United States for endocrine products. The medical profession is responsible for this expenditure, for rarely, if ever, are such products purchased except on a physician's prescription. It would seem then that there exists an economic reason for serious consideration of this subject. It is my firm conviction that if we, as physicians, would familiarize ourselves with the established truths concerning the endocrine system, and let these facts be our guide instead of the hypothetical fantasies presented on the backs of our office blotters, all of the thyroid, pituitary and ovarian glands from the abattoirs of these United States would not be consumed annually to supply the rapidly increasing demands for these products.

In this discussion I will confine myself to those facts, which, upon investigation, appear to have either sound clinical or experimental foundation, excluding as far as possible, all unreliable, fantastic, and purely hypothetic material. To follow a definite plan in the presentation of the data relating to these glands has been found impossible because of my failure to find sufficient reliable material relating to them.

With the exception of the internal secretion of the pancreas as it is related to diabetes mellitus, a discussion of which would be irrelevant to this program, we perhaps possess a more detailed knowledge of the anatomy, physiology, chemistry, and pathology of the thyroid gland than any other gland having an internal secretion. I shall attempt to review as briefly as possible some of the more important facts in thyroid physiology and their applications to the problem of the control of thyroid disease.

The major function of the thyroid, as we now know it, is to provide a means through its iodin-containing hormone for maintaining a higher rate of metabolism than would otherwise exist and for varying this rate. The functional activity of the gland is controlled chemically through the blood stream, and, also, indirectly through the sympathetic nervous system. The thyroid gland exhibits wide range of functional activity to meet the great variations in metabolism occurring during the life cycle of the organism. There is a notable increase in thyroid activity at puberty, during pregnancy and lactation, during the menopause, during protracted febrile reactions, and following the prolonged use of certain diets, particularly those of a high fat and protein content. Increased thyroid activity is associated with a decreased iodin store in the gland, provided the intake of iodin is not correspondingly increased. When the iodin store falls below 0.1 per cent, hypertrophy and hy-

*Read as part of the symposium on Endocrinology at the meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

perplastic changes are regularly found. In comparing further the varying degrees of thyroid hyperplasia and iodin store, it is found that in glands with high degrees of hyperplasia, iodin is usually absent or present only in traces. The primary or basic anatomic changes in the thyroid in goitre are relatively simple. Hypertrophy, hyperplasia, atrophy or colloid (resting state), these cell changes are not characteristic of any clinical disease as has been supposed, but occur in response to any stimulus entailing increased thyroid activity. From a clinical standpoint, the specific diseases in which the thyroid gland is known to play an important role may be divided into two groups: first, Thyroid insufficiencies, of which the important examples are simple goitre and myxedema; and second, Hyperthyroidism—exophthalmic goitre and toxic adenoma.

Simple Goiter, endemic, epidemic or sporadic, is only a local sign of a specific deficiency disease. It is a compensatory or work hyperplasia of the thyroid gland, developing during the course of certain metabolic disturbances of unknown nature, but immediately dependent on a relative or absolute deficiency of iodin. Clinically. it is characterized by a diffuse enlargement of the thyroid gland and gives none of the primary or secondary manifestations of exophthalmic goitre and no elevation of basal metabolism. Its prevention is simple and has been amply discussed by the State Board of Health. In long standing cases, curative measures are unsatisfactory. In early cases, iodin or desiccated thyroid is quite dramatic in its effect. Perhaps the most satisfactory plan of treatment is to administer from 2 to 4 grams of desiccated thyroid in 0.2 gram doses daily and, after allowing an interval of two weeks without treatment, to saturate the thyroid with iodin by giving 30 c.c. of syrup of hydriodic acid in ½ c.c. doses daily. This treatment to be repeated every fourth or sixth month.

Myxedema of adults, as a rule, presents itself in such characteristic fashion that its recognition is simple. The milder types of hypothyroidism, especially those associated with goitre and secondary to diffuse thyroiditis, are of much more clinical importance and are more difficult to diagnose. One is almost solely dependent upon metabolic readings to establish the diagnosis, for the syndrome may be simulated by various conditions indistinguishable without this observation. My impression is that hypothryoidism is the most important hypo-functional state of the entire endocrine system.

Exophthalmic Goitre: The conditions which result from an apparently over active thyroid gland were formerly classified as neurosis. These disorders can be defined as abnormalities in the functions of one or more parts of the nervous system for which there are no corresponding demonstrable nerve lesions. The manifestations of hyperthyroidism are of this character and should be designated as neurosis because that terminology helps to direct attention not only to the probable locality and manner in which the thyroid products act, but to the general nature of the disturbance. It is traceable to certain alveoli which differ from those of the normal thyroid, and, if the duration and intensity of the process is sufficient, morphologic changes occur in other organs. It would seem that this process originates as the result of acquired or congenital weakness, either in the autonomic nervous system or in a weak thyroid. On the one hand, many persons possess a biological weakness of the nervous system, and conditions requiring their active functionation necessitate a corresponding thyroid activity. The thyroid, of evident importance for the nervous nutrition, then fails or overacts. These cases are generally characterized by preceding neurosis, and later, by recognizable hyperthyroid symptoms. Others, and they constitute the majority of the hyperthyroid cases, originate not in "weak nerves," but in a weak thyroid, and this has a very close relationship to the gland's ability to obtain or to metabolize iodin.

The gland's main function is the production of energy. To fulfill this duty, the organ must have available a certain minimum amount of iodin and it must possess a minimun amount of functionally active epithelium. The conditions under which the first signs of the hyperthyroid neurosis develop are almost always those requiring an excessive expenditure of one or another kind of energy. This may be to resist acute or chronic infection, or to endure pregnancy and labor, or to sustain muscular exertion, or most often to withstand an unfavorable environment. Coincident with this, there are the usual signs of ordinary fatigue. In the presence of a goitre, the symptoms are interpreted as hypothyroidism. If the excessive requirements persist, compensatory hyperplasia advances, and the relative hypothyroid state is followed by that of hyperthyroidism. The

hyperthyroid condition orignates in a weak thyroid which overacts not because of a primary and vicious functionation, but because the gland's epithelium under strain or demands, which are excessive, fails in its power to metabolize iodin. The symptoms of typical hyperthyroidism are traceable chiefly to an abnormal or unchecked activity in the autonomic nervous system. The thyroid product has a selective and stimulating affinity for the parasympathetic or vagus terminals; its part in the production of chemical enrgy can be briefly described as that of "drive." The adrenal product, by its corresponding effect upon the opposing or sympathetic terminals, can then be supposed by its inhibition of each organ's metbolism to act as the opposing automatic check. Any break in this chain should lead to the development of a vicious cycle. The most vulnerable link should be in the terminals of the vagus or sympathetic nerves. It is presumable that either of these may have its function interrupted or destroyed by bacterial or other poisons, or, as is clinically common, by fatigue. These facts have a very positive bearing upon the prevention and cure of hyperthyroid states. The importance of rest in those individuals who present the aspects of "autonomic imbalance," especially if thyroid hyperplasia coexist, cannot be too strongly emphasized. Undoubtedly many cases of exophthalmic goitre can be prevented if proper measures are taken before advanced hyperplasia has taken place in the thyroid gland. Once exophthalmic goitre becomes well established, the clinician is confronted with a complex situation in which perverted physiology and biochemical changes have occurred in the entire somatic system, especially, the cardiovascular and nervous apparatus.

The use of the calorimeter has contributed much to our knowledge of thyroid disease. I do not believe that one is justified in resorting to any form of destructive therapy without careful and repeated metabolic readings. The diagnosis of exophthalmic goitre is incomplete without this information, for it must rest upon the presence of two main groups of findings: First, those symptoms resulting from the superactivation of the autonomic nervous system, manifested by tachycardia, nervousness, tremor, sweating, diarrhea, and at times, exophthalmus; and, secondly, by increased catabolic physiology manifested by loss of weight and increased basal metabolism.

There exists a sub-group of hyperthyroidism, toxic adenoma, which has certain clinical characteristics justifying a separate classification. The onset is insidious, the sympatho-mimetic symptoms being mild but progressive, and it is in this type that serious cardiac complications are prone to overshadow the thyroid picture. Paroxysmal auricular tacychardia, fibrillation and flutter are of frequent occurrence. Congestive heart failure supervenes early so that many cases are treated as primary cardiac disease. This group is of immense clinical importance, for the results are brilliant when the thyroxin intoxication is reduced by lobectomy.

From the viewpoint of the clinician, there are many problems concerned in the therapeutic control of exophthalmic goitre of equal importance to those destructive measures directed at the gland *per se*. The maintaining of an efficient cardiovascular apparatus in the event of surgery, the institution of proper physical and mental rest, with the use of diets poor in proteins and fats, are all problems of no small importance.

The use of Lugol's solution to precipitate a reduced metabolic rate in exophthalmic goitre is one of the noteworthy therapeutic contributions of recent years.

The control of hyperthroidism is a problem with many angles. A thorough and comprehensive knowledge of the complex nature of the disease must form the basis for any rational therapeutic effort. Surgery has its role; X-ray, its place; but, above all, there must be co-operation and team work, for disappontment and failure will surely befall the single-handed adventurer.

The parathyroid is of clinical importance in so far as it is apparently connected with clinical tetany. Tetany is a syndrome observed in various conditions, but there is a more or less established disturbance of metabolism in all types. This chemical alteration in the body fluids is either a diminution of ionized calcium or a marked increase in the alkali reserve with the production of an alkalosis. More experimental work is needed to establish the true relation of the parathyroids to these chemical alterations in body fluids. It suffices to say that the treatment of tetany should have a broad scope, depending mainly upon calcium administration to relieve the hyper-excitability of the neuromuscular apparatus and not upon parathyroid feeding.

The relationship of the pituitary gland to

clinical medicine is in a very uncertain state at this time. Much data, previously presented as trustworthy and cardinal, is being questioned and proven incorrect. We know little or nothing of its actual physiology, and, consequently, its relationship to disease is hypothetical. Even the relationship to acromegaly cannot be substantiated since, were this affection the result of a perverted secretory activity, the result could neither be unilateral nor localized. The supposed relationship to symptomatic diabetes insipidus has been practically controverted; the true lesion being found in the basal ganglia of the brain.

It is generally accepted that the anterior lobe of the pituitary gland is chiefly concerned in maintaining and regulating body growth, particularly of the skeletal portion, and in entering into the metabolic activity concerned in the establishment of puberty and sexual maturity. The posterior lobe is assumed to be active in the production of a powerful autacoid which is closely concerned with the physiologic activity of unstriped muscle, while the pars intermedia is believed to be associated with the posterior lobe in the production of this autacoid. One cannot accept these statements without considerable reservation, since literature abounds in clinical and experimental evidence which cannot be wholly reconciled to this belief. The relationship of the various disturbances of the generative organs, especially, those associated with skeletal malformations and irregular adiposity to disturbed pituitary function, rest on very unconvincing data. At any rate, slight evidence has been presented showing that pituitary feeding will influence the course of such conditions.

There exists, no doubt, in the minds of the most conservative, the thought that many diseases are directly traceable to disturbance of the endocrine system. Many of these have well established clinical characteristics. This statement is applicable to all glands having an internal secretion, yet, there are certain facts pertaining to these gland products which have not been properly evaluated. When one attempts to catalogue the various physiological activities of the members of the endocrine system in the living organism, due consideration must be given to the difference between the pharmacological and physiological properties of these gland extracts. For instance, adrenalin chloride will relax the spasm of the bronchial tree in allergic asthma. From this observation one might surmise that the suprarenal gland controlled this musculature, hence, bronchial spasm should be a constant finding in suprarenal insufficiency occurring in Addison's disease. We know that bronchial spasm is not a part of the clinical picture of Addison's disease, hence the action of adrenalin chloride in this instance is pharmacological and alien to the true physiological action of the gland in the organism. Furthermore, it is entirely probable that few of the gland products are able to withstand gastric and pancreatic digestion. We know this is applicable to suprarenalin, insulin and pituitrin. We cannot reproduce any of the pharmacological action of pituitrin by feeding experiments with the posterior lobe of pituitary gland. The logical conclusion is therefore that such products never reach the tissues except as by-products of digestion which undoubtedly destroys their hormonic properties.

Lastly, why do we prescribe two grains of pituitary extracts and one-tenth of a grain of parathyroid extracts as a dose for clinical use? Has any method been used to standardize the dosage? The only reason I have been able to discover is that the pituitary gland is ten to twenty times larger than the parathyroid gland.

The clinician attempting to solve for himself the problems in question, with the aid of modern physiologic literature, finds himself in a maze of contradictions contributed by able men, but which nevertheless leave an impression of unreliability. Experiments in normal animals fail in a large measure to solve the clinical problems observed in patients, especially, those suffering from endocrine disturbances. Francis Bacon's conception of scientific procedure contemplated an exhaustive and minute observation of natural phenomena prior to hypothesis. I fear the modern endocrinologist short-cuts the observations by proceeding under ingenuous guesses, which in a large measure is responsible for the present chaotic state of the whole subject.

Lewis-Gale Hospital.

Let the one who sighs for comfort
Feel a hand-grasp true;
It will cheer the way and surely
Can't impoverish you.

Lives are human though so often
We disguise our pain;
Some are hungering for your comfort
Give and give again.

—*Selected.*

ENDOCRINOLOGY: ITS RELATION TO GENERAL SURGERY.*

By P. W. BOYD, M. D., F. A. C. S., Winchester, Va.

The most fruitful field for research for the surgeon today is the endocrine gland. Scattered throughout the body are a number of ductless glands, the thyroid, thymus, parathyroid, pituitary, tonsils, adrenals, spleen, ovaries, and to a certain extent the testicles, whose functions are products of internal secretions. We have clinical and experimental evidence that the individual gland secretes such a product.

The isolation of the secretion of any one gland has not been accomplished although the glands themselves have been analyzed and placed upon the market commercially as products of the thyroid, suprarenal, parathyroid, ovaries, etc. That the glands do secrete is a recognized fact and the glands have a reciprocal relationship.

The secretions of these glands have a far reaching effect upon the development and maintenance of the equilibrium of both the body and mind.

Get into mind that they are subject to two extremes of functional perversion, one an over-secretion, hyperfunction, and the other an under-secretion, hypofunction. If there is a condition of dysfunction there is no scientific proof that any of these glands do under any circumstances secrete an abnormal or perverted substance.

It is interesting to note that these perversions of secretions produce the extremes of disturbance upon the body and mind. For instance, a hyposecretion of the pitnitary gland in infancy may lead to true dwarfism, while a hypersecretion of the same leads to giantism.

Hypersecretion of the thyroid produces tachycardia, hypersensitiveness, high blood pressure and extreme nervousness and irritability. While a hyposecretion produces mental dullness, lethargy and sluggishness of the circulatory system.

Abnormal functioning of these glands manifests itself in proportion to the age of the subject. The removal of the ovaries or testicles in childhood will effect much more profoundly the subsequent development of the snbject than if removed during adolescence. Again, removal of the same during adolescence will cause more disturbance than if removed in adult life.

*Read as part of the symposium on Endocrinology at the meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

It seems as though many of these ductless glands have their greatest period of activity during development. And any perversion of function at such a time is prone to result in an overgrowth or an arrested development of mind or body.

We have believed these many years that the ovaries and testicles do not begin their functions until abont puberty, when they manifested their activity by evidence of sexual passion. But long before pnberty there is an internal secretion emanating from the testicles and ovaries which goes far toward the making of those qualities which characterize the man and woman, such as bravery, ambition, courage, the desire of a home and children.

The associated organs of the ovaries and testicles, as the uterus and prostate, respectively, are thought by many to have an internal secretion which influences the body. The ovaries influence the mammary glands as well as the uterus, and likewise control the mammary gland. Surgeons at an earlier period were especially prone to extirpate the ovaries. Then came the period of conservatism not to unsex the patient except in direct necessity. This seems to be most logical. Though after the extirpation of the uterus the retention of the ovarian tissue has little or no physiological value and may be of serious harm to the patient, thus giving evidence that there is a break in the utero-ovarian functional harmony, upsetting the internal secretion of these glands.

Many a time an ovary can be saved by transplantation, or otherwise. When both ovaries must be sacrified in a woman in her twenties, remove the ovary, placing it in a solntion of normal saline until the necessary work within the abdomen is completed. Then split open the ovary and place it outside the peritoneum, just beneath the rectus muscle. The menstrual function is preserved and the woman's nervous system is not upset. The internal secretion furnished by this endocrine gland is retained, she is not deprived of a material loss of development, nor of her womanhood or sexuality. After forty-five years of age the removal of both the ovaries scarcely renders any appreciable change in her mental, moral, or physical well-being if the uterus is left intact.

In reviewing the glands with special reference to their clinical bearing, both medically and surgically, the medical treatment takes the form of organotherapy. And we all know the value of the thyroid and the adrenal and

pituitary products. There are also on the markets products from the testicle, ovaries, corpus luteum, pineal and parathyroid glands. But these have no definite clinical basis as yet.

Medical treatment consists of the administration of the gland to replace a hypofunctioning gland. It may also be given for its hormonal relationship or action. There is as yet no medical treatment for hypersecretion of any of the glands.

The surgical treatment sums itself as follows:

First: In hypofunction we resort to transplantation of the glands;

Second: In hyperfunction, extirpation, total or partial. Again we may use any of the operations which diminishes the secreting power of the gland, as vessel ligation, destruction of the gland, tissue, etc.

We have a number of the products of glandular internal secretions which are used surgically and are of established importance; for example, the products of the suprarenal glands or pituitrin. They have not only medical value, but are used surgically in infiltration and local anesthesia, as is adrenalin. We also have a surgical and obstetrical pituitary extract of value in surgical cases, such as intestinal paresis, loss of tone of the bladder and even the stimulation of the heart and vital centers.

In the treatment of tetany which is thought to be a hypoparathyroidism there are two surgical methods:

First, intravenous injection of five per cent solution of calcium lactate or, which in some instances acts better, 20 c.c. of a ten per cent solution magnesium sulphate. It should be given early and in heroic doses.

Second, the transplantation of the parathyroid glands. Auto-transplantation has been shown by Halsted to be feasible and successful.

We are further advanced in the treatment and pathology of the thyroid gland than any of the endocrine glands. It is one of the most important organs in the body. It regulates the development of the bone, distribution of fat, plays an important part in menstruation, has much to do with the sexual function, and in unsuspected ways has an important part to play in human economy.

If the secretion is excessive, hyperthyroidism, the catabolic changes of the body are rapid. The subject shows a loss of weight, tachycardia, muscular weakness, tremor, sweats, mental irritability and characteristic symptoms. If the secretion is deficient, hypothyroidism, the body metabolism is depressed. Everything is at a low ebb. The infant does not develop, becoming a typical cretin. The cause as yet is unknown, though we do know that focal infection from other parts of the body is a decided factor as to thyroid disturbance.

The geological deficiency of iodine seems to be another factor in endemic goiter. Heredity must play some part in causing it as we so frequently see goiter in several members of the same family.

Most all forms of goiter are suitable for operation if causing symptoms, or deformity, or increasing in size rapidly.

We must make careful distinction between the young patient and the middle aged patient. The thyroid gland is absolutely essential to normal development during the period of active development. And the entire gland cannot be removed at this period of life without the risk of an arrested mental development. The risk becomes appreciably less after each decade, until at forty-five or fifty years of age the entire gland can be removed with but slight risk of disaster.

The thymus has a limited existence of principal functional activity and that is during the early period of life. In its existence, two phases are recognized, as in other endocrine glands, one of progression the other of regression. The life of the gland and its functional activities vary at different periods of existence. Remnants of thymus tissue are present in adult life, and even in old age more frequently than we formerly recognized.

Involution begins at birth or in the first year. The thymus attains its most rapid growth toward the end of the second year. The most important biological epoch is to be looked for between the first and the third year of life. Under normal conditions it will continue to develop until the twelfth or fourteenth year. In advanced age the thymus is in evidence.

It is an important organ during the period of active growth. Its function is concerned with general development and particularly with the ossification of bone. The gland frequently undergoes pathological changes, the effects of infectious diseases, malnutrition, exhaustion, etc. X-rays cause a similar result,

effecting principally the lymphatic element of the organ.

The mechanic theory of sudden death from pressure due to enlarged thymus seems to have been too frequently applied. It is evidently possible in a weak, helpless infant, but in strong children and adults it is now practically excluded.

However, the enlarged thymus can cause respiratory and circulatory disturbances. This is strongly supported by clinical observation plus immediate relief when operated upon. Operative treatment of enlarged thymus is giving the best results. The intracapsular thymectomy is the operation of choice. X-ray has given some remarkable cures and is advisable in children before puberty.

Parathyroids: Latent tetany often becomes active after operations of any kind. Sometimes it is brought on by acute infections, nephritis, menstruation, etc.

We must not be too prone to ascribe all diseased conditions to the action of bacteria. Such emotions as hatred, anger, jealousy and discontent often cause disease. These emotions cause a steady increase of internal secretions from certain of the ductless glands which in time disturb the equilibrium of health and throw the balance on the side of disease.

In determining the delicate question whether or not an offending structure or organ should be removed, the surgeon is called upon to render a verdict fraught with heavy responsibility. You are to determine two points:

First, if the patient will survive the operation; and second, what will be the future state of health and physical usefulness of the subject if a certain organ is removed? As surgeons we must inform ourselves regarding the function of these glands before we take the responsibility of disturbing their action.

When good judgment is supplemented by good surgery the results are very gratifying, not only to the patient, but to the profession.

ENDOCRINOLOGY: ITS RELATION TO PEDIATRICS.*

By W. L. HARRIS, M. D., Norfolk, Va.

In a short paper, such as is expected in a symposium of this kind, it is possible to present only a very brief outline of some salient points of endocrinology in its relation to pediatrics.

*Read as part of the symposium on Endocrinology, at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

In reviewing the literature on the subject, one is impressed by how much is written and how little of it is of any real value. There are a lot of vague, fanciful and fantastic theories on the subject but, from the knowledge we have of the thyroid and pancreas, it is only reasonable for us to expect that in the near future, we should have a more exact knowledge of the functions of the other glands of internal secretion.

Unfortunately, the over enthusiastic have, no doubt, done the subject great harm, temporarily at least, by their extravagant claims, but I think the greatest offenders along this line are the over enthusiastic manufacturers, who are trying to find a market for their preparations. These men have been able to elicit the help of certain doctors and pseudo-doctors and have induced them to write articles making all kinds of extravagant claims that have no basis whatever in scientific fact.

Our knowledge of the exact functions of the various endocrine glands is at present very limited and this impresses itself upon us very forcibly when we have some obscure condition of growth, development or metabolism to deal with, and when reasoning from analogy we feel that the glands of internal secretion must be at fault.

It is interesting to contrast the views of the enthusiast and the skeptic upon the subject of endocrinology and organotherapy. L. Vincent, of London, 1923, after a critical review of the "present position of organotherapy" concludes: "There is no subject upon which so much utter nonsense has been talked as internal secretions and organotherapy, or at any rate, a larger part of it may be defined as the application of this nonsense to the practice of medicine. In the meantime, certain firms of manufacturing druggists are making the most of a unique opportunity and are growing rich by reason of the inadequate education of the medical practitioner and the notorious ignorance of the public on all matters relating to their own bodies."

To the pediatrician, endocrinology is almost entirely limited to the phenomena of growth and development, but the ultra-enthusiasts can see more than this and claim that they can see either a hyperfunction, hypofunction or a dysfunction of one or more (usually many) of the various endocrine glands to account for almost every conceivable ailment with which

children may be afflicted, and that if you give a certain glandular extract for a while and see no beneficial results therefrom, add a little of some other gland—one or more, and continue for a long period of time. If the patient eventually gets well or improves, full credit should be given to the treatment, at the same time ignoring the natural tendency of so many morbid conditions in children to improve—not only without treatment of any kind, but in many cases, in spite of treatment.

The extravagant claims made for so many forms of glandular therapy have no well established facts upon which therapy of this kind can be accepted.

There are only two of the endocrine glands about whose function we know very much, the knowledge of which is of real help to us in pediatrics. I refer, of course, to the thyroid and pancreas. If we feed a cretin thyroid extract or its active principle, thyroxin, we get a prompt and most wonderful demonstration of a substitutional organotherapy. In diabetes, the disease in pediatrics for which we formerly could do almost nothing, we now feel that we can keep these little patients alive and very happy for years, with the aid of insulin. How long this treatment may prove of benefit, we do not know, as insulin has been in general use only about two years.

We can make no such claim for any other of the extracts of glands of internal secretion. The pituitary and adrenals afford us most powerful extracts, but up to the present these do not seem to take the place of the glands themselves, as is the case with the thyroid and pancreas. None of the other glands of internal secretion furnish us any extracts that are of much help in pediatrics.

In considering the value of our knowledge of endocrinology in its relation to pediatrics, we should constantly be on our guard lest we allow our enthusiasm to get ahead of our knowledge of the subject and attribute all kinds of morbid conditions to disturbances of the functions of the various endocrine glands, and likewise attribute any beneficial results to the use of the various glandular extracts that our fancy may prompt us to use, and lose sight of the facts that much can be accomplished by time, proper attention to diet, sunshine, exercise, etc.

Take, for example, the over-fat child. This trouble may be due to a hypothyroidism or some dysfunction of the pituitary, or to both. If, after months of proper dieting and exercising, while giving thyroid extract and pituitary extract, the patient's condition greatly improves, do not be too sanguine that the organotherapy did it all, for such cases sometimes show the same improvement without drugs.

It may be easy for us to fool ourselves in therapeutic tests unless we have similar cases for controls. It is exceedingly hard for us in disturbances of the endocrine glands to really recognize and properly interpret the symptoms or signs due to the deficiency of secretion of any single gland. At times it is hard to differentiate between morbid conditions due to deficiencies of secretions of the internal glands and deficiencies in growth and development and other morbid conditions due to want of a properly balanced diet, sunlight, etc.

We could go into a discussion of the supposed functions of the various endocrine glands and the morbid results occasioned by a disturbed function, but so little is as yet proven knowledge, our theories may be changed at any time and it would amount to little more than mere speculation.

However, even our limited knowledge of the functions of the endocrine glands has already helped us to understand and properly interpret a great many conditions of which we formerly knew little or nothing, and organotherapy based upon this knowledge is taking its place in therapeutics. Howland says, "In order that any system of therapy may survive, it must be based upon scientific facts and must be developed as a result of logical interpretation and utilization of such facts."

540 *Monroe Building.*

ENDOCRINOLOGY: ITS RELATION TO GYNECOLOGY.*

By STEPHEN H. WATTS, M. D., F. A. C. S., University, Va.
Professor of Surgery and Gynecology, University of Virginia.

I take part in this discussion with the diffidence of a man who realizes his lack of knowledge of the subject and his limited experience with it.

Although we know as yet comparatively little about the secretions of the individual endocrine glands and still less about their interrelations or combined actions, no one may question the great influence of these glands on important physiologic processes. The over-

*Read as part of the symposium on Endocrinology at the meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

enthusiasm of certain endocrinologists and manufacturers of glandular remedies who extol the virtues of pluriglandular therapy have perhaps lessened the respect of some of us for endocrinology, but who has not been thrilled and encouraged by the recent discovery of insulin and the wonderful results which it has already accomplished? It behooves us to keep an open mind and do what we can to further the knowledge of this very complex subject by well planned and carefully executed clinical and experimental investigations.

There has been considerable discussion as to whether the hormones produce their effects directly on the tissues of the body or indirectly through the autonomic nervous system. It seems likely that some function in the one way and some in the other. Some may even work on the principle of detoxication.

Since this paper deals with the endocrines in gynecology we will review as briefly as possibe the modern conceptions of the physiology of the ovary. In this review we have made free use of the section in Graves' Gynecology dealing with the subject.

That the ovary produces an internal secretion is proved by the evidence gained from observations made after removal, from transplantation of ovarian tissue, and by the effects of injection of ovarian substances into the tissues.

The exact nature of the internal secretion is not known nor is it known in what part of the ovarian tissue the substance is produced, however, it seems most likely that it is formed in the corpus luteum and the follicle apparatus. Since the ovarian secretion is known to exist before puberty, as shown by changes in development after castration before maturity, it seems likely that the follicle apparatus must be the seat of manufacture, for the corpus luteum does not appear normally until sexual maturity. It seems probable, therefore, that the follicle apparatus has a great deal to do with the growth of the genitals and general body development at least up to the time of puberty.

In addition to the follicle apparatus the corpus luteum, which is formed from the granulosa cells lining the follicle, is thought to produce an important internal secretion. The corpus luteum, which histologically somewhat resembles the adrenal cortex, does not form until the age of puberty and with its appearance come the cyclic changes of menstruation and the possibility of fecundation. Fraenkel suggested that the effect of the internal secretions of the corpus luteum is a preparation of the uterus for the insertion and development of the fertilized egg, menstruation taking place in case of failure of impregnation.

Leo Loeb has confirmed by experiments the theory that the corpus luteum inhibits ovulation, and has shown experimentally that ovulation may be accelerated by the removal of the corpus luteum. The absence of ovulation during pregnancy is thus thought to be due to the continued presence of the corpus luteum. Loeb has also demonstrated experimentally the influence of the corpus luteum on the decidual reaction of the uterine mucosa. If the uterus of a non-pregnant animal is incised or the mucosa mechanically irritated at the time during which the corpus luteum is elaborating its "growth substance," a very marked reaction is produced in the uterine mucosa.

Edward Ochsner says that veterinarians have observed that if a false corpus luteum remain unabsorbed in either ovary of a cow she does not come in heat, and so long as she does not come in heat she, of course, does not conceive. On the other hand, as soon as this false corpus luteum is absorbed normally or expressed manually by the operating hand of the veterinarian, the phenomenon known as heat invariably develops within forty-eight to one hundred and twenty hours. Ordinarily the true corpus luteum is retained in the ovary of the cow from thirty to seventy days after parturition. This statement is based upon the following facts: First, usually the cow does not come in heat for this period after calving; second, the true corpus luteum can be felt by the operating veterinarian for approximately this length of time; and finally, when this true corpus luteum is expressed the cow will invariably come in heat within forty-eight to one hundred and twenty hours. This fact is made use of by veterinarians to get valuable cows to produce a larger number of calves. He also states that expression or excision of the false corpus luteum in the human female causes menstruation in from twelve to thirty-six hours in every case. The expression or excision of the corpus luteum of pregnancy is very apt to produce abortion.

That the corpus luteum is not the sole source, or even the most important source, of the internal secretion of the ovary is evident from the fact that during the period of sexual immaturity in which the internal secretion is

performing a very important function the corpus luteum is wanting.

The ovary contains certain connective tissue cellular elements called "interstitial cells" which correspond to the cells of Leydig in the testicle. Successive investigators have found these cells in numerous species and finally in apes and human beings. They occur with great inconstancy, in some species appearing in separate gland-like masses, in others as scattered cells. In some animals they are most prominent during the spring of the year or during the season of rut. Some recent investigators claim to have shown that the interstitial cells become more highly developed after roentgenization of the ovaries, while in the male it is said the homologous cells of Leydig undergo a like development as a result of vasectomy.

Limon was the first to recognize their origin from the lutein cells of the theca interna of the atretic follicles and this view is generally accepted. The internal secretion of these cells is thought to influence the development of the secondary sex characteristics.

Frank, however, has recently said that the "interstitial gland" does not exist in the human being and ascribes the development of the female duct system, from an indifferent anlage, to the evolution of the ovarian follicle, which begins as the primordial follicle, is called a graafian follicle as it ripens, and, after ovulation or bursting has taken place, completes its cycle of existence as the corpus luteum. He thinks the transformation of the infantile genital tract, inclusive of the secondary sex characters, to the adult stage results from a quantitative increase in ovarian secretion.

In this connection a recent article by Allen and Doisy from Washington University at St. Louis on "An Ovarian Hormone," giving a clean cut method of testing its efficacy is of great interest. It has been recently shown that the estrual cycle of mice and rats can be accurately established by microscopic examination of the vaginal scrapings. During the anabolic phase of the cycle in these rodents, the epithelium of the vagina grows to a considerable thickness and a cornified layer similar to that in the epidermis develops. During the catabolic phase the outer layers of this epithelium degenerate and are removed by leukocytic action. These changes provide a definite succession of cell types in the vaginal lumen, each one characteristic of a certain phase of the cycle. Thus the microscopic examination of vaginal smears is a reliable indicator of the estrual condition of the living animal. As a source of hormone Allen and Doisy used the liquor folliculi from the ovaries of hogs and cattle. It was found that from forty to forty-eight hours after the injection of this fluid into spayed rats and mice the animals were in full estrum as shown primarily by the vaginal smears, but these results were checked by an examination of the uterus and vagina which were in the typical hyperemic condition characteristic of estrum. When the contained cellular elements and the fluid of the liquor folliculi were separated it was found that the hormone was in the fluid proper. It was found possible to fractionate this liquid so that an apparently protein-free, active substance was obtained.

Not only were the uterine changes of estrum produced but also growth in the mammary glands, and during the induced estrum the animals mated in a normal manner. Evidence was also secured of hastening of sexual maturity, as animals which had been injected with follicular extract attained puberty and mated twenty-two to forty days before they normally would have done so. At the time of publication the authors had obtained no result from the injection of extracts of corpora lutea, of whole ovary, or of ovarian residue from materials obtained from three of the largest manufacturers of biologic products.

Hypofunction of the Ovaries.—When the ovaries are removed in early life, normal development of the genital system is prevented and changes are produced in some of the other ductless glands, notably enlargement of the anterior lobe of the pituitary gland, which may account for the skeletal changes and adiposity in such cases. Early castration in women is apparently followed by an increase in body length, atrophy of the genitals and lack of development of the secondary sex characters including the breasts.

Castration after maturity, especially after sexual life is fully developed, does not give rise to the profound changes and marked symptoms formerly supposed. The permanent changes are cessation of menstruation and local atrophy of the external genitals, which is usually not sufficient to cause any distress. The temporary changes are vasomotor and possibly some nervous disturbances. The vasomotor disturbances are not constant, being said to

occur in about eighty per cent of cases. They are usually of temporary duration, lasting only a few months, but may last several years. Removal of the ovaries probably causes little or no impairment of sexual sensibility after it has been normally established. It is hardly necessary to say here that there is no basis for the popular idea that ovariectomy is followed by a reversion to the male type, manifested by a deep voice, the appearance of hair on the face, and the acquisition of male instincts.

We know very little about the effects of different grades of ovarian hypofunctiou. It is probable that certain cases of amenorrhea and scanty menstruation are due to this cause. Infantilism is probably not a manifestation of primary ovarian hypofunction.

Hyperfunction of Ovaries.—The so-called myopathic hemorrhages, which are most apt to occur about the time of puberty or the climacteric and for which no definite anatomic basis has been found, are now thought to be due to ovarian hyperfunction as they respond so well to radium and X-ray treatment, which apparently produce their effect through action on the ovaries. Other cases of bleeding associated with definite anatomic changes, such as myomata, chronic endometritis, glandular hypertrophy, chronic metritis, etc., are also thought to be due to hyperfunction of the ovaries.

As stated above we know very little about the correlation of the ovary and the other glands of internal secretion.

The close physiologic relationship between the thyroid and ovaries is apparently shown by the frequent enlargement of the thyroid at puberty and during pregnancy; by the prevalence of menstrual disturbances accompanying both hypofunction and hyperfunction of the thyroid; by the fact that complete thyroidectomy is followed by atrophy of the uterus; because deficiency of the thyroid in the very young or removal of the thyroid in early youth or in young animals prevents the normal development of the genital organs.

As regards the pituitary there seems to be an interrelationship between the secretion of its anterior lobe and that of the gonads. Various experiments have shown that a deficiency of this lobe in the young causes a condition of permanent genital infantilism, while in the adult it produces atrophy of the genital apparatus. Over-activity of the anterior lobe is associated with over-activity of the sex glands. By feeding extracts of this lobe to animals Goetsch claims to have produced premature development and increased activity of the genitalia. Frank and others have not been able to obtain these same results by the feeding of anterior lobe extracts.

The enlargement and possible over-activity of the pituitary following castration has been mentioned above.

Hyperfunction of the pars anterior before maturity is supposed to give rise to gigantism and after maturity to acromegaly. In the early stages of these conditions there is an over stimulation of the sexual apparatus which is followed later by decreased function, probably due to degenerative changes in the pituitary gland.

The close embryologic relation of the adrenals to the sex glands is well known. This association is supported clinically by the fact that in some cases of sexual precocity the adrenal cortex has been shown to be hypertrophied, while certain non-destructive tumors of the adrenal cortex in young children are generally associated with premature development of the secondary sex characters. Moreover, hypertrophy of the adrenal cortex occurs during pregnancy. In hyperplasia of the adrenals changes are said to occur in the testicles, particularly in the interstitial cells. No relationship has yet been established between the adrenal medulla and the sex organs.

The thymus is thought by some to exercise a restraining influence upon the sex glands in early life, but this has not been proven; in fact some go so far as to say that the thymus does not produce a hormone.

Carlson who takes a very conservative attitude concerning the correlative action of the different endocrine glands says: "The failure of gonad function in hyperthyroidism is probably due to the profound disturbance of metabolism. In cretinism and myxedema, there is evidence of degeneration or atrophic changes in most of the organs of the body. It is well known that drepression of the gonads is a frequent effect of metabolic disturbances from faulty diets, as well as from chronic maladies resulting in cachexia. The failure of gonad function in frank hypopituitarism may also be due to the general impairment of growth and metabolism; but this is less certain, because the disturbance of metabolism in hypopituitarism is less profound than in hypo-

thyroidism. But we are not justified in interpreting the fact in the sense of a direct stimulation of the gonads by pituitary hormones, since pituitary feeding seems to have no influence on gonad development and acromegaly itself may be accompanied by gonad depression rather than the reverse. At present, there is no evidence that hypoactivity or hyperactivity of any endocrine system, outside of the specific gland involved, can produce or prevent diabetes, myxedema, Addison's disease, infantilism or acromegaly. Despite this fact, the thyroid-pituitary-pancreas-suprarenal-gonad group will probably continue to be a favorite exercise ground for speculative physiology and therapy in regard to mutual hormone control."

Ovarian Transplantation.—That the ovaries produce an internal secretion seems to be conclusively proved by the results of implantation and transplantation of ovarian tissue. Experiments in apes have shown that the ovaries may be excised and replanted with preservation of menstruation. It is likewise known that transplantation of ovarian tissue may preserve the menstrual function in women. A number of cases are reported in which transplantation of ovarian tissue into the uterine cornua has been followed by pregnancy, moreover in a very few instances heteroplastic transplantation is said to have resulted in full term pregnancies.

When menstruation takes place after transplantation it usually appears in two or three months, apparently after the transplant is well vascularized. Menstruation may continue for several months or several years after the transplantation but the transplant shows a great tendency to undergo degeneration. Autoplastic transplantations are naturally the most satisfactory but ovarian tissue which is so diseased as to require removal is hardly suitable for transplantation into another part of the body. When we consider how unsatisfactory are homo- and heteroplastic skin grafts we would expect little result from such grafts in the case of a more highly organized tissue like the ovary. Ovarian transplantation has been done by numerous operators to avoid the ablation symptoms after oophorectomy and some have reported encouraging results but the majority have found the results very unsatisfactory. Graves thinks ovarian transplantation may possibly be of value in the functional amenorrhea of young women.

Martin, who from time to time has thoroughly reviewed the subject of ovarian transplantation, has reached the following conclusions:

"1. Clinically, there is very little to encourage one to believe that transplantation of ovaries as practiced up to the present time has more than speculative value as a surgical procedure.

"2. There is some evidence that autotransplants are of some value in deferring the symptoms of the menopause and delaying the cessation of menstruation. It is difficult, however, not to attribute some of this evidence to suggestive therapeutics or to unattached ovarian tissue left *in situ*.

"3. There is practically no convincing evidence that homotransplants have been successful in the human female.

"4. There is no evidence that heterotransplants have been successful where the human female has been the recipient.

"5. There is some encouraging evidence recorded in experimental animal surgery that not only autotransplants, but homotransplants and even heterotransplants have been successful and the sexual function of the castrated animal maintained."

Ovarian Organotherapy.—In spite of the widespread use of ovarian products in gynecology, any exact knowledge of their utility and of indications for their use is very slow in developing. This is doubtless due to a number of factors; primarily our lack of knowledge of the ovarian hormone; the lack of standardization of the ovarian products; the lack of any exact measure of effect such as basal metabolism determinations after the administration of thyroxin and estimations of the sugar in the blood and urine after giving insulin; the use of old, inert preparations; the giving of too small doses over too short periods; the possibility of the active principle being destroyed when administered by mouth.

The products most frequently used are extracts of the whole ovary, corpus luteum extract, and ovarian residue, which is the ovarian tissue after removal of the corpus luteum. These are prepared by most manufacturers in very much the same way, namely, the ground tissue is dried at low temperatures, powdered and sold in the form of tablets or capsules Formerly, some manufacturers defatted the materials to increase their keeping qualities, but this has been largely given up since some

importance has been attached to the ovarian lipoids. The dosage is the same whether corpus luteum or ovarian extract is given, 5 gr. three or four times daily. In most of the preparations now used 1 gr. of the extract represents 6 or 7 gr. of the fresh ovarian substance.

In recent years a good deal of importance has been attached to the corpus luteum as the source of the internal secretion of the ovary and corpus luteum extract has been much used. Graves, however, claims to have gotten better results with ovarian residue and calls attention to the probable importance of the atretic follicles in the production of this secretion. The experiments of Allen and Doisy with liquor folliculi, mentioned above, would seem to indicate that whole ovary or ovarian residue are preferable to corpus luteum extract. The ovarian preparations have been used chiefly in the treatment of the vasomotor and nervous symptoms of the artificial and natural menopause, functional amenorrhea, and dysmenorrhea. The clinical reports on their use are generally unsatisfactory, in fact for the most part worthless. In many instances the cases have been poorly studied, different preparations have been used in the series reported and unwarranted conclusions have been drawn. We should remember that in many of these cases our only measure of effect is the subjective symptoms of the patient, and bear in mind that some of the good results may be due to the psychologic effect of the treatment.

My personal experience with these preparations has not been sufficient to allow me to draw any conclusions of value. This experience on the whole has been rather disappointing and I do not prescribe them with any great confidence in the results. I have had some apparently very good results from the use both of ovarian extract and corpus luteum extract in the vasomotor disturbances of the artificial and natural menopause but, on the other hand, I have had cases which have shown no improvement from the same treatment.

Many others, however, report distinctly good results in this class of cases, notably Graves with ovarian residue and Burnam with corpus luteum extract. Graves and others report very satisfactory results from the treatment of functional amenorrhea and scanty menstruation in young women with ovarian extract, and Graves has found this treatment fairly satisfactory in pruritus, kraurosis, furunculosis, and other affections of the vulva in elderly women where the local disturbance of the parts is due to inadequate circulation. The results of the treatment of essential dysmenorrhea associated with under-developed or infantile uterus by means of ovarian products have not been encouraging.

Novak, in a recent review, expressed himself, after years of experience, as being distinctly uncertain regarding the value of ovarian organotherapy as we know it today.

For the present it would seem wise for the individual observer in practical work to adopt some one preparation of each gland and use that exclusively for considerable periods. In this way only will he be able to reach a just conclusion regarding the value of glandular therapy. The indiscriminate use of pluriglandular remedies has done much to bring endocrinology into disrepute.

References.

1. Allen, E. and Doisy, E.: An Ovarian Hormone. Jour. Am. Med. Assn., 1923, LXXXI, 819.
2. Burnam, C. F.: Corpus Luteum Extract. Jour. Am. Med. Assn., 1912, LIX, 698.
3. Carlson, A. J.: Hypofunction and Hyperfunction of Ductless Glands. Jour. Am. Med. Assn., 1922, LXXIX, 98.
4. Faught, F. A. and Ryan, T. J.: Resume of Our Knowledge of Function and Interrelations of Endocrine Glands. Am. Jour. Med. Sc., 1922, CLXIV, 646.
5. Fraenkel Ludwig: Die Function des Corpus Luteum. Arch. f. Gynak., 1903, LXVIII, 438.
6. Frank, R. T.: Influence of Pituitary Extracts on the Genital Tract. Jour. Am. Med. Assn., 1919, LXXIII, 1764.
7. Frank, R. T.: The Ovary and the Endocrinologist. Jour. Am. Med. Assn., 1922, LXXVIII, 181.
8. Graves, W. P.: Gynecology, Third Edition, 1923.
9. Graves, W. P.: Ovarian Residue. Surg. Gynec., and Obst., 1919, XXIX, 537.
10. Loeb, Leo: The Experimental Production of the Maternal Placenta and the Function of the Corpus Luteum. Jour. Am. Med. Assn., 1909, LIII, 1471.
11. Martin, F. H.: Ovarian Transplantation. Surg. Gynec., and Obst., 1922, XXXV, 573.
12. Novak, E.: An Appraisal of Ovarian Therapy. Endocrinology, 1922, VI, 599.
13. Ochsner, E. H.: Further Observations on the Function of the Corpus Luteum. Trans. Southern Surg. Assn., 1919, XXXII, 118.

ENDOCRINOLOGY—ITS RELATION TO RADIOLOGY.*

By DANIEL D. TALLEY, Jr., M. D., Richmond, Va.

As has already been brought out, the general subject of endocrinology is one which is beset by many complexities and much of our present-day knowledge concerning it must rest upon bases more or less theoretical. In its discussion from the radiological standpoint there are certain phases to be taken up which are not yet capable of complete scientific proof, but there are likewise many valuable practical facts, both in regard to diagnosis and to therapy which have been absolutely proven to be true. It will be our particular aim to bring these proven facts to your attention with discussion as to their real value and also to comment to some extent on the phases which do not seem to rest on so firm a foundation of proof.

Our subject must include both diagnosis and therapy, for the efficacy of the agents which we are to discuss is well divided between these two departments. From the diagnostic standpoint it may be possible to obtain positive information with the roentgen ray, dependent sometimes upon enlargement of the endocrine glands, and in other instances where disordered secretion has produced demonstrable abnormalities in osseous development. Our therapeutic results depend upon the well-known inhibitory effect of the X-rays and radium upon glandular tissue. These effects are diametrically opposed to those desired from organotherapy. Administration of gland substance aims to compensate for undersecretion or hypofunction; radiation tends to reduce a hypersecretion and perhaps to reduce an accompanying hyperplasia of the glandular substance. We are well aware of the fact that endocrine disturbances are not by any means dependent upon the dysfunction of a single gland and that the ultimate analysis of most cases should include a consideration of all the glands and their mutually balancing functions, but the points to be brought out in this paper will be for the most part best taken up by discussing the different endocrine structures as separate entities. In the case of some of the glands our science of radiology is helpful from both the diagnostic and therapeutic standpoint, in some cases from one of these standpoints only, while some of the glands do not come within our own diagnostic or therapeutic provinces. Furthermore, in discussing the possibilities to be expected from radiology in helping to diagnose and treat disturbances in these glands, we will adhere as nearly as possible to those disturbances which have a direct bearing on the endocrine function.

*Read as part of the symposium on Endocrinology at the fifty-fifth annual meeting of the Medical Society of Virginia, at Staunton, October 14-17, 1924.

Thymus.

Without going into the questions concerning the functions of the thymus gland, it may be said that all observers who have studied the question of thymic hyperplasia seem to be of the opinion that this condition is much more prevalent than is generally supposed. Of importance is the recent report of Peterson and Miller who made a study of 120 new-born infants and found evidence of abnormal thymic enlargement in 43.3 per cent. They quote two other reports of studies of sixty and 119 cases, respectively, in which the incidence of enlargement was 48 per cent and 42 per cent. In this article the authors state that while both clinical and roentgen-ray diagnostic procedures were used, roentgen-ray evidence formed the actual basis for study. For reasons suggested below, it is believed possible that the incidence of positive cases may have been even larger than their paper would indicate.

In the diagnosis of this condition, general clinical evidence is of great value, but thoracic physical examination alone is extremely uncertain. Suspicious cases on being submitted to X-ray examination should give the following findings: If the gland is enlarged laterally, as is most commonly the case, there is a widening of the upper mediastinal shadow continuous with the heart shadow below and often indistinguishably merging with it. This shadow will be more or less typical in its appearance to those familiar with the interpretation of thoracic roentgenograms. It is possible, however, for enlargement of the gland to take place in an antero-posterior direction only, in which case the abnormal change will be invisible on the thoracic film. In the cases where lateral enlargement takes place, the amount of increase in size is not necessarily in proportion to the abnormal manifestations present. We may have definite X-ray evidence of marked thymic enlargement without clinical evidence of its presence, or we may have marked symptoms with little change in the thymic shadow.

Being lymphoidal in structure the gland responds quickly to the effects of radiation, and experimentation upon animals has shown that roentgen-ray exposures cause involution changes with amazing rapidity. This is borne out by clinical observations, so that for several years roentgen-ray treatment has been recognized as a specific for thymic hyperplasia and its distressing manifestations. The amount of radiation required is slight and the results are so brilliant that in cases where clinical evidence of thymic enlargement is present without positive X-ray evidence, radiation treatment should be instituted, the results of same constituting a therapeutic test. The X-ray has been the most usual form of administering the radiation, but more recently radium has been advocated as presenting certain advantages as to convenience of application.

Thyroid.

We shall omit any discussion of the diagnostic possibilities of the roentgen-ray in connection with the study of this gland as they have no direct bearing upon its endocrine function.

With the exception of malignant disease of the thyroid (which it is likewise not in order to discuss here), the disturbances of this organ properly treated by radiation therapy are manifested by hypersecretion and its resultant toxic effects. Thyroid adenoma with hyperthyroidism, exophthalmic goiter and hyperthyroidism without goiter or exophthalmos are the only abnormal thyroid conditions which are recognized as offering any response to the application of X-rays or radium. Therefore, our discussion here bears on the value of radiation therapy in hyperthyroidism. The two most pertinent questions in this respect would seem to be: (1) Does irradiation of the thyroid satisfactorily control hyperthyroidism? (2) If so, is it the best method at hand for producing the desired results? When it comes to a question of specific therapy, it is now admitted that we have only two methods of treatment to consider, namely, surgery and radiotherapy. Granting for the moment that either one of these methods will produce the desired results in a considerable number of the cases treated and that in the most favorable ones either surgery or radiotherapy is all that is necessary, there will be a large proportion of cases where the intoxication is so profound that adjuvant treatment is desirable. In the case of the patients selected for operation it may be largely in the shape of preliminary treatment, and in the cases where radiotherapy is chosen, other measures may be necessary in order to obtain the best results from this specific form of therapy. Among these measures may be mentioned: (1) rest in proportion to the severity of the disease; (2) diet of the proper kind; (3) treatment of cardiac, nervous and gastro-intestinal complications; (4) temporary or partial control of the hyperthyroidism by administration of drugs, particularly iodine; (5) removal of possible foci of infection as early as possible.

The above enumeration is made for the purpose of emphasizing that, in order to obtain the best results, other measures may be necessary than the particular form of specific therapy chosen, and that each case may present peculiar problems concerning the most advantageous method of its management.

Concerning the question as to whether radiotherapy has a curative effect in hyperthyroidism, the favorable results of some hundred or more investigators show this to be a positive fact. We have had considerable experience in these cases extending over the past few years and have now come to expect steady improvement to take place almost as a matter of course in most of the cases selected for irradiation, after the treatment has had proper time to begin to produce its effects.

Our own experience has been entirely limited to the use of the X-ray as the radiotherapeutic agent. At least a majority of the workers who have both radium and X-ray at their disposal seem to prefer the latter and it seeems to be the most logical of the two for employment here. The only record which we have found of any comparative tests with the two agents is a report by Burrows and Morrison, who give their comparative results in two series of 100 cases where radium and the roentgen-ray, respectively, were used, and the results obtained were vastly in favor of the X-ray.

The question as to the permanence of the relief afforded by this form of treatment has been often brought up. Only since the advent of the Coolidge tube has the technique of roentgen-therapy been at all standardized. Enough time has elapsed, however, for us to be able to state positively that actual permanent cures may be obtained. The effects produced may depend largely on the judgment,

technique and experience of the operator, and it is possible that the present technique will be subjected to future alterations.

The basal metabolism test is the recognized method of detecting hyperthyroidism and of observing the course of the disease. To use the words of Benedict, "this test, which was a physiological curiosity ten years ago, has now become a pathological necessity." In irradiation of the thyroid, our plan is to advise a metabolism test before each tri-weekly treatment. The clinical improvement of the case is usually concomitant with the decrease in the basal metabolic rate, but the test of the latter is an absolute index of the condition of the thyroid, provided the possibility of well-known sources of error are borne in mind. In steadily improving cases treatment is given every three weeks until the rate is normal, and radiation is never continued after this normal is reached.

Those who have followed this subject are familiar with the study which has been made at the Massachusetts General Hospital, where a so-called Thyroid Committee, consisting of surgeon, internist and roentgenologist, has daily studied the thyroid cases together, has determined on the treatment to be given each one and noted the progress of the cases already under treatment. A good deal of this work has been reported by Richardson, Means, Holmes and others. Briefly, their conclusion seems to be that in the cases of hyperthyroidism similar end results can be accomplished by X-ray treatment and surgery in groups of equal severity, though it requires longer to obtain good effects by means of radiation. About two-thirds of the patients radiated show either recovery or improvement concomitant with the treatment.

It may be said of radiotherapy that its administration is free from danger if properly applied, that there is no discomfort of application and no mortality. The statistics which come from some of the larger clinics show the surgical mortality in this class of work to be low, probably between three and four per cent. This represents work done under the most favorable circumstances, and the general mortality throughout the country will of course be somewhat higher. Surgical results are somewhat superior in the toxic adenomata to those obtained in the cases of exophthalmic goiter.

Just what groups should be treated by irradiation and which should be treated by surgery has not been definitely established, and neither procedure will effect recovery in all cases. We believe it reasonably conservative to say that early cases, including those of mild and of moderately severe toxicity, may be satisfactorily handled by radiation. If definite improvement does not occur in three months, radiation should not be further continued. Even this period should not be allowed to elapse in the very severely toxic cases where cardiac and other organic changes seem likely to occur, and some form of surgery should probably be resorted to. In cases where such changes have already occurred and which are therefore very poor operative subjects, a limited period of radiation may decrease the danger of operation. In regard to pre-operative irradiation, it has been said that this renders the operation itself more difficult on account of adhesions. That this is not the case has been noted by competent observers. Reports are not uncommon of cases submitted for pre-operative radiation in which the results from the radiotherapy rendered further treatment unnecessary. Cases where operation has been unsatisfactory may show response to radiation. Obviously the management of many cases may require close co-operation between internist, surgeon and radiologist. Radiotherapy of the thymus gland is thought to hasten the results of radiotherapy of hyperthyroidism on account of the possibility that the thymus is involved in the pathological process.

Pituitary.

The fact that much has yet to be learned concerning the exact functions of this gland and their relations to other endocrine activities must act as a hindrance to both diagnosis and therapy. In both these fields radiology plays a distinct part, although the scope of its diagnostic value has been the subject of much argument and its therapeutic possibilities have probably not yet been fully determined.

In the diagnostic field, there is the question of what constitutes the normal sella turcica from the radiographic standpoint. It has been agreed upon that the bony fossa which contains the pituitary gland may assume one of a number of different shapes and may vary in capacity to some degree, and still be within normal limits. A study of over one thousand X-ray films of the head in connection with the clinical work of Drs. Tucker and Gayle, with

careful measurements of the size of the pituitary fossa, tends to confirm the conclusions of Camp and others that the average antero-posterior diameter is about 11 mm., and the average vertical diameter 8 mm. Enlargement of the contents of the sella, if it be sufficient to exert continued pressure on the bony confines, will give X-ray evidence of its presence by more or less characteristic changes due to erosion of the walls or floor of the fossa. The enlargement may be due either to tumor formation with decrease in the secretion of the gland or to a true hyperplasia of the glandular elements with hypersecretion. In acromegaly, we have in most cases a fairly typical sellar enlargement, and with it other characteristic changes in the head, namely, large thick skull, coarse vessel markings, prominent brow with enormous frontal sinuses, square jaw, etc. There is a type of fossa seen which is diametrically opposed to the acromegalic; the capacity is small, the dorsum is low, the posterior clinoids extend sharply forward and unite with or closely approximate the anterior clinoids. This type of fossa is in our experience more commonly seen in heads which show general appearances opposite to the acromegalic, namely, small capacity, rather thin walls, fine markings, etc. These appearances may be associated with long standing or congenital hypopituitarism. A considerable number of cases of abnormal pituitary secretion will probably give no X-ray evidence of its presence.

Reports of beneficial results in the radiation treatment of pituitary lesions are beginning to be seen in the literature, especially in the cases of adenoma and other conditions manifested by hypersecretion. Treatment may be given by the X-rays externally or by radium implanted against the gland in explored cases of adenoma found to be inoperable. We have had little or no personal experience with this therapy, but it is founded on the susceptibility of adenomatous or glandular tissue to radiation. The technique of application will probably be improved as time goes on.

It has long been known that disorders of endocrine function have been responsible for various abnormalities of osseous development, and numerous studies have been made of these changes, particularly with regard to the alteration in the development of the bony epiphyses. The recently published work of Engelbach and McMahon, based on a clinical material of over 2,000 endocrine observations, seems to cover this phase of the subject far more thoroughly than any previous contribution, and these writers feel that roentgenological comparison of the bones of endocrinopathic and normal subjects of ages from birth to twenty-five years offers brilliant diagnostic prospects. They have studied the normal development of the whole osseous system roentgenologically. As different epiphyseal centers normally develop at different ages, they stress the point that according to the age of the patient a study of the particular centers which are normally ossifying or uniting at that age should be made to obtain the most information from the investigation. They report valable information from observation of retardation of bony growth in hypofunction of several of the glands, with other changes more or less characteristic of the gland in question, while in some conditions the bony growth is accelerated.

The adrenals, the pineal gland and the gonads will be mentioned briefly.

Discussion of irradiation of the adrenals has been largely confined to possible damage to these bodies and to their secretory activity by deep abdominal therapy for various abdominal conditions. That this may occur is believed to be true, and in administering roentgen treatment to the abdomen precautions should be taken to keep the adrenals out of the field of direct rays as far as possible, but the amount of damage likely to be done has not yet been accurately ascertained.

Concerning the gonads and the pineal gland there are some remarks that might be made, but it is not thought that from the purely endocrine standpoint, radiology bears a sufficiently important practical relation to these structures to warrant further continuance of our discussion.

Bibliography.

Peterson, R. and Miller, M. F.—Thymus of New-Born and its Significance to the Obstetrician.—*Jour. A. M. A., July* 26, 1924.

Grier, G. W.—The Diagnosis and Treatment of Enlarged Thymus.—*Amer. Jour. Roentgen.*, Feb., 1924.

Pfahler, G. E.—Diagnosis of Enlarged Thymus by X-Ray and Treatment by X-Ray or Radium.—*Arch. Pediatrics*, Jan., 1924.

Drea, W. F.—The Enlarged Thymus Gland.—*Jour. of Radiol.*, June, 1924.

Holmes, G. W.—Radiation Therapy of the Thyroid and Ductless Glands.—*Boston M. and S. Jour.*, July 3, 1924.

Mayo, C. H. and Pemberton, John J.—Surgery of the Thyroid and its Mortality.—*Annals Surg.*, Aug., 1923.

Pfahler, G. E.—The Treatment of Hyperthyroidism by the Roentgen Rays.—*Am. Jr. Elcctrother. and Radiol.*, June, 1924.

Richardson, E. P.—Relative Value of Surgery and Roentgen Ray in the Treatment of Hyperthyroidism.—*Jour. A. M. A.*, March, 1923.

Means, J. H. and Holmes, G. W.—Further Observations on the Roentgen Ray Treatment of Toxic Goiter.—*Arch. Int. Med.*, March, 1923.

Christie, Groover and Merritt.—Review of the Treatment of Hyperthyroidism by all Methods with a Summary of the Author's Experience with Roentgen Therapy.—*Amer. Jour Roentgenol.*, May, 1923.

Camp, J. D.—The Normal and Pathological Sella Turcica as Revealed at Necropsy.—*Radiology*, Vol. 1, 1923, p. 65.

Camp, J. D.—The Normal and Pathological Anatomy of the Sella Turcica as Revealed by Roentgenograms.—*Amer. Jour. Roentgenol.*, Aug., 1924.

Rouschburg.—Two cases of Hypophyseal Dystrophia Adiposogenitalis and their Treatment by Means of the Roentgen Rays.—*Deutsche Med. Wchnschr.*, 1921, No. 43.

Wehetritz.—Roentgen Irradiation of Tumors of the Hypophysis.—*Fortschr. a. d. Geb. d. Roentgenstrahler*, March, 1924.

Engelbach, Wm., and McMahon, Alphonse.—Osseous Development in Endocrine Disorders.—*Radiology*, June, 1924.

Timmie, W.—Lectures on Endocrinology.—Paul B. Hoeber, N. Y., Dec., 1923.

104 *Professional Building.*

ENDOCRINOLOGY: ITS RELATION TO NEUROLOGY AND PSYCHIATRY.*

By JOHN J. GIESEN, M. D., Radford, Va.

A branch of medicine, in which etiology is most indefinite and obscure and in which it has been necessary in the study of most of the conditions coming within its scope to blame heredity and hereditary influences as the principal causative factors, has viewed the dawn of endocrinology with a hopeful eye and, I think, has been in the main disappointed. The neurologist and the psychiatrist, whose therapy at the best is only occasionally semi-specific, very rarely specific and, most often, is purely symptomatic or experimental, has, with a few glowing exceptions, found little to add to his comfort in gland therapy. There is such a mass of literature available on endocrinology that it would take the ordinary man a life-time to digest all of it; so much of it is mere speculative nonsense and so little of it presents definitely proven facts and legitimate theory that a great deal of valuable time is being lost by the average medical man in attempting to get from the literature a comprehensive and intelligent idea of the glands of internal secretion and their relation to general medicine and the various specialties. In discussing endocrinology with many medical men, I learn that numbers of them are deriving most of their information about the subject from pamphlets and epitomes published by enterprising and business-seeking drug houses and the contents of these are principally selling-talk and add little or no constructive information to medical science. Their elaborate claims for brilliant therapeutic results with, of course, each one's own particular preparations, but with a total lack or a minimum of information as to correct diagnosis and specificity have influenced may physicians to administer gland products indiscriminately and with little or no appreciable benefit to their patients. This or that gland, then, in some physician's opinion, gets a "black-eye," so far as its efficiency is concerned in the treatment of some condition where, most probably, after all, a hypo-state of the particular gland aimed at actually did not exist. I think this class of "reading matter" has harmed endocrinology by prejudicing some good men against it before they have afforded themselves the opportunity of studying the subject properly. However, I wish to say that a few of the better drug houses have been of unquestioned aid in advancing the knowledge of the endocrines by producing extracts and other preparations of the various glands in pure form, accurately standardized, for legitimate experimentation by the profession, also by legitimate research in their own laboratories. Their aid should not be deprecated.

The neuro-psychiatrist has been no better than the man in general practice or in other specialties in nonsensical and poorly constructed gland therapy and experimentation. For instance, some fat, sluggish women at the menopause, with symptoms of depression or melancholia, have been given thyroid in harmful doses because they looked a little like myxoedema, while actually at times these women have a high vascular tension and a plus basal metabolism reading. In spite of the high blood pressure and the metabolic reading, some of them improve on pluriglandular therapy with an infinitesimal dose of thyroid gland included. Thyroid in physiologic doses, however, as is sometimes given, is distinctly harmful and detrimatal. I know of several instances where poor old maiden ladies who manifested neuroses or psycho-neuroses at the menopause and even

*Read as part of the symposium on Endocrinology, at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

some young women with hysteria have been fed orchic substance. I do not know the particular theory behind such medication and I refuse to plead guilty to such far-fetched therapy. A few neurologists, and some of them men high in the specialty, have gotten the pituitary fad in epilepsy, because it is claimed that there is a pituitary deficiency in some types of this disease. They neglect or interdict rational forms of therapy and push pituitary feeding in every case with the result that the rare case where pituitary is indicated is sometimes helped and the other ninety-nine per cent get worse. In the chronic and graver forms of psychoses, particularly dementia praecox, every sort of gland, singly and in every conceivable combination, has been given but the praecox cases continue to fail to get well and still constitute fifty per cent of our asylum population. In spite of the startling advances in endocrinology and the unquestioned but poorly understood role played by the endocrines in mental and nervous disease, we must still deal with heredity and hereditary influences as the predominating and overwhelming etiological factor.

Had I the time, I could enumerate all of the many neurological and psychiatrical conditions and elaborate on the alleged role played in each one by the endocrine system as a whole or by the secretion of the individual glands *per se*. I could further take up each gland with a known or theoretical secretion and elaborate on the many actual conditions, relating to neuro-psychiatry, which its hyper- or hypo-state or total absence of secretion could probably bring about. This, however, would necessitate a volume rather than a short review.

It is admittedly true that some definite disease entities, for instance cretinism, hyperthyroidism, acromegaly, dystrophia adiposogenitalis and others, in all of which a definite pathologic state of one or more of the glands of internal secretion is at fault, present in many cases true neurological or psychiatrical symptoms and for this reason occasionally reach the hands of the man dealing with mental and nervous diseases and the endocrines are specifically utilized by him in such cases. To this extent, then, endocrinology relates definitely to neurology and psychiatry. In all other cases the relationship is indefinite and mostly on a semi-specific or theoretical basis to the extent that in the hysterias, the various types of neurasthenia, in all functional neuroses, in epilepsy, in the manias associated with adolescence, pregnancy and the menopause, in the various phases of manic-depressive psychosis, in psychoneurosis and even in senile dementia, the endocrines are used in treatment haphazardly and indiscriminately by some, cautiously and conservatively by others, and, by some, not at all.

Dercum says, "Evidently in the graver forms in which gross or marked failure of development is present, such as in idiocy, imbecility, constitutional inferiority, and very frequently in dementia praecox, the facts set an abrupt barrier to our attempts at therapeutics. This is not entirely true, however, in the milder forms such as we meet with in the neuroses." I think Dercum has very aptly put the proposition and I shall attempt to discuss the subject from this angle.

Old age is marked by a series of anatomical and physiological changes of a degenerative nature in which we might naturally expect the endocrines to take part as well as play a role. Some of the senile alterations suggest endocrine factors such as scantiness and dryness of the hair, dryness of the skin, the manifestations of a depressed metabolism in the osseous structures, the tendency to chilliness, sluggish mentality, sexual impotence, tremors and glycosuria. Administration, therefore, of pluriglandular mixtures theoretically should halt senile decay and prevent, among other manifestations, the nervous and psychic features. In the opinion, however, of such men as Hoskins, Barker, Halsey and others, in which I humbly concur, the glands here fail to meet the issue. Possibly we have not yet reached the point where they are properly prepared or properly administered or the proper combination used. In the male, they seem to fail entirely. It is my opinion, however, that the one bright spot in endocrinology in its relation to neurology and psychiatry is in ovarian therapy for the treatment of nervous and psychic features in women at the menopause. When ovarian preparations are given hypodermically, they certainly do help these cases. By mouth, I find them usually ineffective. Many women pass through the menopause with little trouble. Many have more or less characteristic symptoms, such as hot flashes and sweats, vague pains, sensations of uneasiness, headaches, nervous apprehension, etc. A few present definite psychiatric features, principally manic-depressive, and often are accompanied by indications of an over-active thyroid. This is likely due to lack of luteal secretion, which we know in

menstrual life exerts inhibitory control over the thyroid. The woman with little or no trouble at this epoch must have an endocrine system which quickly adjusts itself to new conditions. In the others, ovarian and corpus luteum therapy does help to bring about this adjustment more quickly probably by inhibiting the thyroid and apparently acting as a regulator or tonic to the whole endocrine system, which, temporarily, seems to get out of gear.

We admit some relationship between epilepsy and the endocrines but nothing is definite. Tucker believes that a deficient pituitary secretion leads to periodic convulsive seizures. However, many definitely known hypopituitary states do not have convulsions. In a rare case, pituitary feeding does seem to help, but I have seen no case that did well unless the gland administration was supplemented by luminal or bromides. Probably we have in epilepsy a condition where more than one gland is at fault and one in which a proper combination of pluriglandular therapy would avail more. Epilepsy is almost always an hereditary disease and pituitary feeding in cases with a definite hereditary coloring will usually do no good.

In the asthenias, neurasthenias and their related ailments, we feel that the adrenal system is at fault. We do not, however, secure results from feeding adrenal substance or by giving epinephrin hypodermically. In the sexual neurasthenics and in sexual perversions, some experimental work with the endocrines has been done, but little in the way of definite results or proven facts has been obtained although we must feel here that the endocrines do play a large part. The recent Franks murder case in Chicago and the subsequent trial has brought the endocrines largely into lay prominence by the testimony of alienists that the endocrine systems of the murderers (particularly the pineals) were deficient enough to account for their so-called childhood phantasies and other psychic abnormalities. These boys did unquestionably have diseased minds, in the popular sense, for no normal human could deliberately take life as they did. It is possible that their psychic abnormalities were in a sense resultant from endocrine disturbance. However, a direct statement to that effect, in the light of our present knowledge of endocrinology, is entirely premature and gets one into dangerous territory.

In paralysis agitans, we feel that the parathyroids are deficient. Berkley claims favorable results in sixty to seventy per cent of his cases of paralysis agitans treated with parathyroid; the experience of others is entirely to the contrary. Probably where there is a toxic state behind some nervous or mental ailment, parathyroid because of its alleged detoxicating effects, might help. I have had no experience along this line. Recently it has been claimed that if parathyroid is used supplementary to chaulmoogra oil in the treatment of leprosy, almost miraculous results are obtained. If this be true, it would certainly prove that parathyroid does have a detoxicating power. In paralysis agitans, which is not so much a toxemia as it is a degeneration, we are certainly not getting results with parathyroid gland feeding or with anything else.

The gonads, outside of their value in treating menopausal conditions, which have already been discussed, are of questionable value therapeutically.

Summing up, the ovary, pituitary and thyroid bear a fairly well defined and satisfactorily understood relationship to a few certain nervous and mental diseases from the standpoint of etiology, pathology and therapeutics. The present status of other conditions in which these three glands play a part and the relationship of the other units of the endocrine chain to neuro-psychiatry is mostly indefinite, vague and unsatisfactory. No doubt endocrinology actually plays a much larger part in this branch of medicine than is now apparent and much more careful research is still needed and much less indiscriminate experimentation.

St. Albans Sanatorium.

ENDOCRINOLOGY: ITS RELATION TO THERAPEUTICS.*

By L. E. STUBBS, M. D., Newport News, Va.

This symposium on endocrinology includes papers dealing with the relationship of the subject to every branch of medicine. The fact that such a symposium is possible (its applicability to every field of medicine) is conclusive proof of the importance of the subject. A discussion of such a far-reaching and inclusive subject should be of value to workers in all fields.

*Read as part of the symposium on Endocrinology, at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

Historical

The widespread interest in and intensive study of internal secretions are of recent date. In a period of thirty-five years the whole structure and point of view of physiology and functional pathology have been revised, and some of the most fundamental concepts of general biology have been reconstructed on the basis of internal secretions. In the healing arts of primitive peoples, as well as in the earlier periods of scientific medicine, remedies were employed and measures resorted to which are direct fore-runners of the organotherapy of today. Bordeu in 1775 was the first to formulate a general theory of internal secretions. Hahnemann's homeopathy threw out a branch, isopathy, following out very closely the more modern Hallion's law, in which a substitutive and homostimulative system of therapy was introduced, administering healthy organs of healthy animals for diseases of those same organs in man: fox lung was given for pulmonary disease, wolf's liver for hepatic troubles, ox eyes for ocular affections, etc. Berthold in 1848 was the first to demonstrate experimentally the nature of the activity of a true ductless gland. Claude Bernard in 1855 first coined the word "internal secretion" and gave expression to the doctrine of an internal secretion. The actual date, however, upon which the doctrine of internal secretions, as now known, may be said to have been born is June 1, 1889, the date of the lecture given by Brown-Sequard, describing researches upon himself, at the age of seventy-two, in which he had injected testicular extracts subcutaneously, claiming remarkable physical and mental rejuvenation. Though much ridiculed, and probably over-enthusiastic, Brown-Sequard, as founder of the doctrine of internal secretions, has opened up to physiology a new and fruitful field for experiment, has paved the way for the rightful understanding of many pathological derangements, and has pointed out a rational, and, in many cases, a remarkably successful method of treatment. By the steady work of clinicians, pathologists, experimental physiologists, and biochemists, the present day conception of internal secretions has been reached in which the internal secretions are regarded as a means of maintaining an harmonious interaction between the various cells, tissues, organs and parts of the body. A few therapeutic principles have been worked out, some knowledge of which is a prerequisite to the rational employment of organotherapy.

A clear understanding of what we are trying to accomplish will greatly facilitate the results of our therapeutic procedures. Too much of our therapy is empirical rather than rational and it should be our purpose ever to provide a more rational basis for whatever treatment is undertaken. We should plan our treatments as far as possible in accord with principles, either well established, or likely to become so. Barker states, and very truthfully, that many practitioners are using endocrine products in an utterly desultory manner in the treatment of disease before inquiring into the rationale of such treatment, accepting readily the statements of advertising pamphlets which make their way daily to our desks, the only virtue of which is to enrich their authors. Many glandular products are thus extolled and placed at the disposal of physicians for therapeutic use: some of these are of value, others of them are of doubtful value, and many of them are absolutely worthless.

The profession is evincing a lively interest in endocrinology and rightfully so. The laity is also evincing the same interest and has an exaggerated idea of our knowledge of endocrinology, and is prone to cherish hopes which we as physicians cannot as yet fulfil. It is important that the profession and the laity, in so far as possible, be kept posted as to the actual state of our knowledge in this field, so that this knowledge may be used in appropriate cases, and so that not more than is legitimate in the present state of our knowledge may be expected. Much of the glandular therapy of today, however harmless to the patient, injures the good name of the medical profession with the intelligent laymen. We cannot practice quack methods and escape the just censure of society. Unfortunately, much of our endocrine therapy is empirical, our fundamental conceptions having been attained by clinical observations of end results rather than by rational induction from basic facts determined after the approved fashion, by controlled experimentation. Empiricism has a legitimate place in medicine, it having often been said that the value of any procedure in medicine must finally be determined empirically in the crucible of the clinic. But remember, a crucible is not an open hearth into which junk may be thrown promiscuously, nor is the result of a crucible test determined by the amount of smoke and

spluttering produced. The only empiricism that is of value is that which results in well substantiated facts. Much of the confusion in the endocrine field would seem due to over-anxiety to escape the odium of empiricism, leading to forced rationalization when no genuine rationalization is possible.

Many normal functions—visceral, neural, mental, metabolic—are dependent upon the products elaborated in and distributed by the glands of internal secretion. Hyperfunction, hypofunction, or dysfunction of any of these glands may give rise to serious pathological states that sooner or later become evident in recognizable clinical syndromes. When confronted with the various syndromes for analysis and treatment, it is with great difficulty that practitioners orient themselves, owing to the variety of forms of disorders of the ductless glands which nature presents, as well as to the fragmentary character of the existing knowledge. This difficulty becomes all the greater because of the tendency for a disorder of one gland to be associated with a disorder of one or more of the other ductless glands.

Endocrine Organs and Their Functions

Extirpation experiments in healthy animals, correlated with clinical observations, have established the following facts:

Loss of the thyroid is followed by cretinism in the young and myxedema in the adult. Hypothyroidosis and athyroidosis lead to cretinism and myxedema.

Loss of the parathyroids induces depression, tetany and death, in a short time, unless the animal is subjected to special dietary and diuretic control.

Loss of pancreas leads to absolute diabetes, and death from diabetes (in the dog) in from four to seven weeks. So in man loss of secretion of the islands of Langerhans leads to diabetes mellitus.

Loss of the testes and ovaries is followed by persistent sexual infantilism in the young, and in the adult by loss of the sex urge and sex functions, and by gradual atrophy of most of the secondary sex characters. Castration and spaying in man produce the same effects, with the additional factors of nervous disorders of the menopause.

Loss of the suprarenal medulla induces no symptoms and no disease, and clinically hypofunction of the suprarenal medulla produces no symptoms as far as known.

Loss of the suprarenal cortex causes profound prostration and death within a short time, just as clinically partial or total destruction of the suprarenal cortex leads to Addison's disease and death.

Loss of the posterior lobe of the pituitary gland produces no symptoms, though some observers hold that diabetes insipidus and disturbances of metabolism result, others holding that these symptoms are due to injury to the base of the brain outside of the hypophysis.

Loss of the anterior lobe of the pituitary gland produces impairment in growth and infantilism in the young, and in the adult leads to adiposity, somnolence, and atrophy of the sex glands and failure of the sex function. So clinically, degeneration of the anterior lobe of the hypophysis leads to infantilism.

Extirpation of the pineal gland produces no symptoms. The same might be said of extirpation of the thymus except hastening of adolescence in the young.

As for hyperfunction: in man, assumed hyperfunction of the endocrine organs is the causative agent in many conditions, among which may be mentioned the following: toxic goitre (the thyroid); acromegaly (the anterior lobe of the pituitary gland); hypertension (suprarenal medulla and thyroid); precocious puberty (suprarenal cortex, hypophysis and the pineal gland); diabetes (thyroid); excessive menstruation (ovaries or the corpus luteum).

Giving this short summary of the picture of hypofunction and hyperfunction of the internal secretory organs, I realize that I have digressed somewhat from my subject. But, to treat any malady with intelligence, we must have some idea of the underlying abnormality. Knowledge of the uniglandular diseases will assist in the analysis and treatment of the polyglandular diseases which we are called upon to care for. Clinical-pathologic studies have shown that uniglandular endocrinopathies are rare, whereas pluriglandular endocrinopathies are common. This is to be expected, considering the present day conception of the linking together of the endocrine organs into a system of reciprocally dependent organs.

Source of Glandular Therapeutic Agents

There is a pressing need of standardization of methods of manufacture and of assaying of glandular products. The actual amount of active agents, be this a hormone or what not,

may vary a great deal under varying conditions. Even though a given gland contains a large amount of the hormone, there is no certainty that it will not be lost in the manufacture of the gland products. It would thus seem wise for the individual worker in this field to adopt some one preparation of each gland and to use that exclusively for considerable periods of time, using the desiccated material that has not been subjected to any process of extraction or chemical treatment or, preferably, the refined active principle where this has been isolated. Only by patient, careful and conscientious observation and recording of clinical results will organotherapy take the place that it should take in the practice of medicine.

Principles of Organotherapy

As a result of the careful observations of workers in different fields, a few therapeutic principles have been evolved:

1. Substitution in endocrine deficiency; according to which the physician substitutes (a) an organ derived from another person or from an animal by transplantation, or (b) fresh or dried glandular substance derived from animals, or (c) an active principle of the gland involved, extracted from the glands of animals, or prepared artificially by the manufacturing chemist.

2. Homostimulation, based upon Hallion's law, "The extract of an organ administered in suitable amount has an elective stimulating action on the functional activity of the same organ in the patient to whom it is administered."

3. The principle of mild stimulation in endocrine deficiency, in which the activity of a deficient endocrine organ may at times be increased by mild stimulation, either by X-rays, radium, or the administration of other glandular products which have a stimulating effect upon the gland involved. The latter may be termed the "Hormone Therapy by Reciprocal Action" as described by Borchardt, based upon the correlation of the endocrines. Therapy is not directed to the gland which plays the most important part in the clinical syndrome, but to another gland in the same chain which acts as an intermediate factor in producing the effect, or produces physiological effects which compensate for those of the affected organ.

4. The principle of using endocrine products for their purely non-specific pharmacologic properties, examples of which are the use of pituitrin in diabetes insipidus and adrenalin in bronchial asthma.

5. The principle of organ reduction or of function reduction in endocrine hyperactivity. This principle may be applied in several ways depending upon the nature of the condition and the effects sought for. The function of a hyperfunctioning organ may be reduced by partial excision, or by causing necrosis of its cells by injection of hot water, by galvanocautery, by electrolysis, or by intensive radiation with X-rays or radium. Or the function may be reduced by lessening the blood supply by ligation of its vessels or by cold applications, or by injury short of necrosis by means of X-rays or radium, electricity, or well directed pharmacotherapy.

6. The principle of multiglandular therapy in pluriglandular syndromes and in general sclerosis of the endocrine organs. Engelbach feels that we can accomplish more by uniglandular therapy skillfully directed even though we have a pluriglandular disorder. He advises making the test with one gland substance for a long time to determine whether we get a therapeutic reaction. If we do not and we feel that there is another gland involved, give the other substance singly, noting results. In this way we may arrive at just the sufficient dosage and the correct amount of each substance which the individual may need which cannot be expected in using stock prescriptions of pluriglandular substances.

Therapy of the Endocrinopathies

Though the above principles are not hard to understand, the application of these principles in practice is of necessity restricted, owing to the fragmentary character of our knowledge. It is also well to remember that the use of the endocrine products is not limited to conditions having some endocrine abnormality as their basis.

Considering the number of internal secretory glands and the fact that each of these glands may produce symptoms as result of hypofunction, dysfunction, or hyperfunction, it will readily be seen that there are possibilities of many different endocrine syndromes. However, in so far as medical therapeutics is concerned, our treatment is directed mainly toward the treatment of the hypofunctioning glands, that is on the principle of substitutive therapy. The future will undoubtedly unfold many other conditions amenable to organo-

therapy. But at present we would do better to limit our discussions to known facts rather than to mere theorizing. Of the endocrine products of known activity, thyroid preparations, preferably thyroxin, dried pituitary gland substance and pituitrin, adrenalin, and insulin are the only ones which can be depended upon in therapeutics with any degree of certainty.

Thyroid, either the dried gland substance or thyroxin, is one of the most useful agents we have in medicine. According to Sajous, it is indicated in:

1. Diseases due to slowed destruction of toxic wastes, such as tetany, disorders of the menopause, asthma, chronic rheumatism, migraine, and in those due to slow oxidation of fats, as in obesity.

2. Diseases due to lowered general nutrition of all tissues, including the bones, as shown by its action in hypothyroidea, cretinism, etc.

3. Diseases due to lowered nutrition of the muscular elements, including the skeletal and vascular muscles, as shown by its action in general adynamia, neurasthenia, and myasthenia.

4. Infectious diseases, increasing resistance by producing an increase of immune bodies.

If there is reason to believe that in any of these conditions the thyroid is underfunctioning it will undoubtedly be indicated and will yield good results. But promiscuous administration, without careful examination of our patient, simply on the "hit or miss" principle, is to be strongly condemned. Brilliant results will be obtained by thyroid preparations, provided they are potent, in cases of cretinism, myxedema, and in many cases of masked hypothyroidea. These latter cases require close study, including basal metabolic determinations. Small doses should be given, gradually increasing so that symptoms resulting from overdosage do not occur.

Pituitary gland products have a very definite place in therapeutics on the principle of both substitutive and pharmacologic therapy. Whole gland, posterior or anterior lobe preparations, are used as indicated in the individual case, the desiccated posterior lobe, "Hypophysis sicca," and the extract of posterior lobe "liquor hypophysis," being official. Desiccated anterior lobe is not official though used. Obstetrical pituitary solutions are two and a half to three times the United States Pharmacopoeia standard; surgical pituitary solutions about five to six times the Pharmacopoeia strength.

From a substitutive standpoint, we must be familiar with the physiology of the lobes of the pituitary before we can hope to make use of any of these products with any degree of intelligence. Engelbach gives the functions of the two lobes in the following words:

1. The anterior lobe regulates and controls (a) skeletal growth: and (b) the function and development of the gonads and the secondary sexual characters.

2. The posterior lobe is definitely concerned with (a) carbohydrate metabolism; (b) the contraction of involuntary and unstriped muscles—peristalsis and uterine contraction; (c) the renal secretions—polyuria; (d) the blood pressure: and (e) the body temperature. Engelbach still further states that there are undoubtedly many other functions possessed by the lobes of the pituitary gland, but our knowledge of these is so limited as to make it impossible to make use of them as evidence of disturbance of activity of the individual lobes. It is also true that this gland is not alone involved in performing the above functions, the correlated action of the entire endocrine system again coming into play. But the influence of the other glands will be appreciated by careful study of other clinical manifestations and complexes associated in which we recognize the action of related endocrine organs.

Various clinical types can be differentiated, depending upon the age at which the individual lobe deficiency began, as well as upon the state of activity of the involved lobe at the time of observation. Engelbach in grouping his case has noted that a great majority of each group of cases presented a constant cardinal sign or symptom. Apparent opposite syndromes will be brought into agreement and explained on a common basis if the cases observed are considered from the above standpoint. Many patients with amenorrhoea, dysmenorrhoea, menorrhagia, metrorrhagia, headache, obesity, abdominal pain, epilepsy, somnolence, have an underlying hypopituitarism. This may be of unilobar or bilobar type. If the cases be studied carefully, a correct diagnosis can be made and relief can be secured by instituting intelligent therapy with pituitary gland products.

Engelbach feels that there are always at least two glands involved in these cases, one being the primary cause of the disease, and the other being secondarily involved because of

withdrawal of the secretion of the primarily affected gland. In the treatment of these syndromes he advises using first, the glandular substance secondarily lacking, later substituting the gland substance primarily involved. In this way we will supply the deficiency resulting from both the primary and the secondary abnormality.

Perhaps the use of pituitary gland preparations for their pharmacologic action is the most important. The use of pituitrin in shock, uterine hemorrhage, intestinal paresis, uterine inertia during the second stage of labor after complete dilatation of the cervix, diabetes insipidus, and asthma in combination with adrenalin, is of the greatest importance.

Adrenal gland preparations are of doubtful use in substitutive therapy, though their use in Addison's disease may be productive of good. However, for its pharmacologic action, the use of adrenalin is widespread and is attended by most satisfactory results. Thus, in surgical heart failure, collapse from hemorrhage, shock, toxemias, including bacterial infections, when collapse threatens with a persistent hypotension, hypothermia, cyanosis, it is often life saving. Its use in relieving an acute asthmatic paroxysm is frequently spectacular. More recently its usefulness in preventing the occurrence of reactions following the administration of salvarsan and in counteracting the results of hypoglycemia induced by excessive doses of insulin has been emphasized.

Pancreatic preparations have been of doubtful use in the past, though, with the advent of insulin, the reverse is true. No agent we have in therapeutics is surer in its action than insulin. Recently volumes have been written regarding its use in diabetes mellitus, with which I am sure you are all familiar. It is, as you know, an extract derived from the islands of Langerhans in the pancreas, representing the internal secretion of the pancreas. It bids fair to be of untold benefit to humanity and especially to those unfortunates whom we have heretofore been unable to benefit. Its use should not be abused as is apt to be the case with any new preparation. There are very definite indications for insulin in diabetes, not all diabetics requiring its administration. My feeling is that it should be reserved for the severe diabetic, the diabetic child, diabetes complicated by acidosis, coma and gangrene, and as an adjunct when surgery is indicated or practiced. It should not be forgotten that it is not a cure for diabetes and that its use does not mean that we can neglect the diet. On the other hand, diet is even more important with insulin than without insulin for we are using a very potent agent and one fraught with danger, unless we understand its action and know what our patient is getting in his diet. The dose should, of course, be regulated to the needs. The time of administration is to be determined according to conditions. In my experience it has seemed best to give insulin about fifteen to thirty minutes before meals, and at all times by hypodermic injection, it being inactive when given by mouth. The fact that it has to be given by hypodermic injection militates against the routine use in all diabetics.

Recent reports are very favorable to the use of insulin for its pharmacologic action in the nausea and vomiting of pregnancy in which there may be marked acidosis, as well as to its use in postoperative acidosis. In both of these cases it is used in conjunction with glucose.

Summary

An historical sketch has been given of the development of organotherapy. Warning against the indiscriminate use of the products of internal secretion has been urged. The far reaching effects of the endocrine organs have been described, and the consequent multiplicity of syndromes and difficulty of correct interpretation of the syndromes have been mentioned. A short summary of the symptoms produced by loss of hypofunction and hyperfunction of the endocrine organs has been deemed in order Attention has been called to the need of standardization of the agents used in therapeutics. The principles of organotherapy have been given in brief. Lastly, the conditions in which the internal secretory products may be of value have been enumerated.

Conclusions

1. The use of endocrine products has a very important place in our therapeutic armamentarium.

2. It is believed that the future will witness signal therapeutic achievements in the field of endocrinology.

3. Avoidance of the indiscriminate use of worthless endocrine products, with careful standardization and assaying of the principles

derived from the internal secretory organs, together with careful observations and honest records of the results accomplished, will serve to develop this very useful and important field of medicine, of which our knowledge is at present, very slight and inaccurate.

Elizabeth Buxton Hospital.

MENOPAUSE AND CLIMACTERIC.*

By JOHN N. UPSHUR, M. D., Richmond, Va.

Two periods in the life of every woman of deepest significance to her well being are puberty and the mid-life change, the latter being the time when the line is crossed from the child-bearing period—about thirty years—into that of decline, though this latter part of life may be much its longer period. It is said that when the girl starts early she stops late; that if she goes wrong in the beginning she is wrong to the end. At the outset, I would have you grasp the fact that the menopause and climacteric are two different conditions. The return of the flow may be regular and may keep up for a number of years, and yet the woman be in her climacteric; and the menopause be established, and yet the climacteric go on for years after. In the development of our knowledge of the physiologic conditions at work in the human system, we realize the complex situations which exist. Before the girl has her menstrual flow established, functioning in the endocrine glands is at work, predisposing to and modifying, and comfortable and healthy development of puberty is dependent upon the smooth working of these glands. Change in the shape of the pelvis is credited to the development of the ovarian secretion, and a definite relation to the hypophysis and other glands, of a somewhat inhibitory character as regards the anterior lobe, compared with the glands when influenced by the gonads in the male.

The inhibition is more marked when the flow is established and we see the developed corpus luteum modifying the functions by its stimulation. These influences react on the thyroid in anticipation of pregnancy, and when it fails to occur, the secretion from the lining membrane of the uterus reacts on the ovary.

Bandler says, "There is no question in my mind but that the posterior lobe of the pituitary has trophic control of menstruation, and the well being of the uterine adnexa. Dysmenorrhoea may be due to excessive action of the posterior lobe of the pituitary aided by the corpus luteum. In some women, the premenstrual symptoms are marked swelling and tenderness of the breasts, swelling of the thyroid, nervous irritability, or depression, etc. Marked instability of the gland, probably, is often responsible for the pain of dysmenorrhoea." Because of failure to recognize these influences, the girl goes to the operating table for divulsion and curettement, and instead of being helped, is often made worse.

When the time of retrogression comes, varied conditions in the flow may exist. The flow may be normal in every respect, it may be too frequent or delayed, it may be excessive, or scanty, but withal, the premenstrual symptoms are urgent, beginning possibly a week before the expected time of return, flushes, tingling in the extremities, tachycardia, a feeling of fright, especially if in a crowd, more or less acute headache, usually in the occiput, sometimes like a bolt through the temples, and in the eyes, pituitary, usually modified, but sometimes more intense when the flow comes on.

The first menstrual symptoms, usually headache and lassitude, last probably for a week, and withal an intractable digestive disturbance, especially evident by large accumulations of flatus and pain. The digestive disturbance cannot be put upon any special line of diet and often, when these cases fall into the hands of the stomach specialist, they go the whole round of lavage, test meals, X-ray, etc., and in the end get nowhere.

We may have three conditions in the thyroid, over-activity, under-activity, instability, marked in character—the first of excitable type, the second depressive, the third a mixed type, manic in character, resulting in melancholia, or other forms of instability. These last are the pitiful cases, in which the happiness of a woman and her family are wrecked. Do they get well? When the whole thing is over, sometimes, but often these cases are hopeless to the end.

Should these cases be restrained? Not if it can be avoided, but they should have intelligent treatment from administration of the gland extracts to supplement the lowered function or upset balance of the endocrines during the period of retrogression. Furthermore, de-

*Read as part of symposium on Endocrinology at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

Since reading this paper, Dr. Upshur has died, as noted in this issue of our journal.

pression in the pituitary leads to the development of obesity, and greater tolerance of sugar. but reverse conditions in the pituitary, and other depressive conditions that may be present at this critical period, may be the initiative of diabetes. Under these modifying influences, the subject may eventually succumb to pernicious anaemia.

Injury to the cervix, unrepaired or unheeded. may develop cancer, and, when flow has been irregular, or has ceased for a period and returns, there should be no delay in careful examination to ascertain if malignancy is developing, in which event the remedy should be applied before it is too late.

If there be hypopituitarism, low blood pressure and slow pulse are found, and the subject is dull and drowsy.

Alterations in these endocrine glands are responsible for the varied nervous symptoms we have to contend with in these cases. It should not be forgotten that when an artificial climacteric has been brought on by removal of the ovaries, the artificial precipitation of change of life may produce all of the nervous symptoms intensified, even to mental unbalance and melancholia, nor should we lose sight of the fact that all cases of melancholia have a suicidal tendency, and may at times be very violent, so as to require restraint.

Occipital headache, radiating behind the ears and down the neck, the spine or the sciatic region, speak for pituitary plus. There is marked relation between the thyroid and adrenals. Perfect functioning of these glands has a marked influence at puberty in the sex development of the child, and we see symptoms at puberty which closely resemble some of the symptoms we encounter at the climacteric, the contrast of puberty and retrogression. At the period of retrogression there must be a rearrangement of gland activities. The flushes, in some cases very distressing, are largely due to deficient ovarian secretions, and I have seen the administration of varium, or ovarian extract, control the situation promptly and in a most marked degree. Just here, in passing, I would say that in scanty and painful menstruation of the young girl, the cause often is found in a slight internal secretion action of the ovaries, and prompt benefit will come by administration of varium, or ovarian extract.

It should be remembered that at the climacteric the child-bearing period is over, and there must be complete physical readjustment in the woman. If only the ovary is deficient, and an increased activity in the pituitary should exist, it is a most fruitful source of nervous and psychic trouble. The ovaries and post-pituitary must possess an even balance; the distinguishing symptoms, especially flushes, are to be combated. Not uncommonly, if there is still flow, regular or irregular, at the period, associated with these flushes is agonizing headache, located in occiput, or in some cases like a bolt through the temples, or central between the eyes in the frontal region.

Actual knowledge of the history of the woman as to the establishment of menstruation, has a more important relation to disturbed conditions at the climacteric than we are apt to realize. Foundations may be laid then influencing conditions during the child-bearing period, and finding the climax, when the climacteric is on. In the modern education of girls at the present day, just when all physical conditions should be carefully regulated, they are kept under such mental strain as to react on them physically, and the return of each menstrual period is one of progressive suffering.

In this day of athletics, the period of quiet which the girl should have while menstruating is disregarded. Many times lack of care on the part of the girl is the fault of the mother, who, absorbed in the varied demands of society, fails to do her duty in supervision of her daughter's health. The girl attains maturity and is unfitted for marriage and true wifehood and motherhood. With this result, what is the high mental culture worth?

The rate of mortality in women at the climacteric is not greater than in men at the same age. No doubt this is due to the fact of business strain, habits of life, excess in eating and drinking, and use of tobacco, which things render men at that age liable to break down in renal, hepatic or cardiac functions.

During the child-bearing period, the trend of vascular and nerve supply has been towards the pelvis; with the advent of the climacteric, there is an upset in the balance of these forces. and the balance must be restored before the woman puts on full health. The process of restoration is of necessity attended by various nervous reflexes of almost infinite variety; the mental poise is disturbed, as indicated by loss of self-control, there is irritability of temper, morbid dread of something untoward happen-

ing, and despondency, even to the degree of melancholia.

During this change the mammary glands are periodically swollen and more or less tender. Beware of interpreting this as a pathologic condition; it is only a part of the picture. The tachycardia, often a distressing symptom, is not to be controlled by digitalis, and other so-called heart tonics. They only put on the brakes, as it were, do no good and may do harm. Control is to come from general nervines, endocrine extracts, and sedatives for all reflexes from uterine irritations. These nerve disturbances come through the sympathetic and, secondarily, the general nervous system. This is not only true in the disturbed cardiac condition, but in the gastric as well, and these troubles will best respond to the treatment indicated above.

There is lowered nutrition in the pelvic organs, the uterus and ovaries undergo atrophy, and balance in the endocrine glands is disturbed because one of the family, the ovary, is lowered markedly in its internal secretive functions. The corpus luteum is abolished, and the secretion from the endometrium, following ovulation and menstruation in the unimpregnated uterus, ceases.

Lowered nutrition in these organs makes them more susceptible to the inroads of disease, especially carcinoma. Occasionally, the flow continues normally until after fifty. In this case, there is doubt if it be a menopause in the true sense, as it may be due to some constitutional disease, nervous shock, damage from improper curettage, or application of some chemical in the endometrium. It may return with restored health, but we must not mistake a bloody discharge for menstruation, unless it possesses all of the characteristics of regular return, quantity, quality, mammary symptoms, etc. Cessation may be caused by the exhaustion of lactation, parturition, injury, from falls, blows on the sarcum or pelvis, cold, fright, or ovarian disease.

The first indication of the menopause is irregularity, without discomfort, several periods passing. Or it may be indicated by too frequent return, where the sequel is apt to be impaired general health, with the consequent anaemia predisposing to an attack of some serious and possibly fatal malady.

The compensation to the woman, accustomed for many years to a periodic loss of blood, is found in increased action of the skin, increased renal action, and increased elimination of carbon by the lungs.

We have a plethoric type, a chlorotic, and a nervous type. Even in the plethoric cases there is more or less impairment of the general health, in the chlorotic there are altered blood conditions. The nervous type are abnormally impressible, easily startled by noises, panicky, and have painful local reflexes, a notable one being spasm of the rectal sphincter, which causes great pain and is easily relieved by hot vaginal douches, local applications of heat, and nervines internally. These are the cases most prone to develop a nervous break down. Epilepsy, chorea, and other nervous affections of early menstrual life may occur, but the prognosis is favorable.

Lymphatic women, for whom the regular return of the menses has been too great a tax, improve markedly in health when the flow ceases, but plethoric women are liable to local congestions, hemorrhage, and gouty development, the menses being one avenue of elimination of uric acid. It takes more the character of acidosis than true gout. Social position exercises a modifying influence on the affections incident to this period. Those surrounded by luxury and who lead idle lives are much more susceptible to nervous affections than those more impoverished, of a lower social position, or who are forced to earn a livelihood for their families and themselves, subjected to changes of temperature, greater fatigue, or who are never free from the worry and care of children or domestic worries of housekeeping.

The prognosis of diseases occurring at this time of life is in the main favorable. But sometimes the change is so critical that the ganglionic nervous system does not seem to be able to react from it and, though there is no organic disease, the woman goes on for a few years, feeble and invalided, and eventually dies from some simple intercurrent affection.

Tilt says (Change of Life, p. 973): "In going over my numerous cases to discover why some women suffer so much and others so little at this period, I came to the conclusion that it does not so much depend upon the strength enjoyed by the system, which is constitution; nor the visible predominance of one set of organs over another, which is temperament; nor does it depend on the menstrual flow ceasing early or late, nor in women being single or married, rich or poor, but on a peculiar

susceptibility of the nervous system, a condition hidden from the microscope, but evident in the manner in which it responds to the reproductive and other stimuli. Women who suffered much at the change of life, had often suffered much at puberty, and menstrual periods; while these had seldom been attended with distressing symptoms in women who suffered moderately at cessation. I therefore conclude that the diseases at the change of life, like those of puberty, are to be ascribed to the nervous system being unable to tolerate the stimulus imparted to it by the coming into power of the reproductive organs, nor the loss of the stimulus on their falling into decay; for when the nervous system is well tempered, this stimulus improves health instead of disturbing. Vital acts, however, are never found cut and squared with mathematical precision, and I have had some patients who suffered much at cessation, although their previous health had been uninterruptedly good."

These are words of wisdom and a long experience on my part tends to confirmation of the statement. Of course, if the woman enters upon the change of life with some diseased condition of the general system or generative organs, she is much more liable to greater suffering, and succumbs much more easily under the impress of some nervous or mental shock.

It must not be overlooked that the sweatings and flushings which occur in some cases act as safety valves, and interference with these will be the starting point of some more serious malady.

In the treatment of these cases, much benefit is to be expected from the administration of the gland extracts. What extract is to be selected depends upon the accuracy of diagnosis as to *which* of the endocrine glands is failing to function normally. This is often difficult, and the problem is solved by the administration of protonuclein, which contains all of them. In my hands this has been most satisfactory. At the time of the return of the period, with symptoms intensified because of the pelvic reflexes, great comfort may be given by administration of viburnum, and I have found the most eligible form to be Hayden's Viburnum Extract. Sometimes it markedly relieves the attendant headache. Our chief aim is to sustain the system in such a way as to allay nervous irritation, and to supply stimulus and nourishment which will keep the patient as nearly as possible at the normal standard of health. This is the broad indication. The more exact management must be directed to the administration of sedatives and nerve tonics, such as strychnia, zinc phosphide, sumbul, cannabis indica, henbane and iron in judicious combination, and such means as will control hemorrhage, suitable food, rest and freedom from worry of all kinds, or such surgical procedures as will retard or remove disease, threatening or developed, in the pelvic organs or other parts of the general system.

It is an axiom not to be contradicted that *drugs are not to be administered in any case when simpler and less active agents will accomplish the same end.* I cannot too emphatically protest against the *injudicious prescribing of narcotics* or alcoholics at this time of life, because of the great danger of developing dependence upon them and establishing the drug habit, from the slavery of which it becomes almost impossible afterwards, to free the victim.

The nervous and mental conditions of women at this time make them liable to the development of the drug habit. Great responsibility, therefore, rests upon the medical attendant lest, in relieving physical suffering, we substitute a condition which brings shame and disgrace upon the woman and her family. When depressed mental condition, insomnia, etc., are to be dealt with, it is better to strive to relieve them by getting the patient's mind off of self, by change of environment, and regular exercise, if her strength will admit of it, avoiding everything which tends to mental depression and worry, and to endeavor by the force of good influence to lead the mental condition to a healthy point. Combat insomnia by administration of some form of concentrated nourishment just before she retires, as hot milk, or malted milk. A warm salt bath is most soothing to the nervous system. Regular daily use of massage and electricity, faradic or galvanic as may be indicated, is helpful. Try all simple means possible before resorting to drugs. When the necessity of drugs is imperative, never lose sight of the fact, and at the proper time withdraw them.

In very plethoric cases, local or general bleeding may be of great service, soothing the nervous system and equalizing the circulation. Appropriate treatment of any local condition must not be lost sight of. The woman must be kept free from excitement of all kinds, if

possible, and relieved from the cares of domestic life.

Indian hemp, camphor, and henbane are useful in allaying generative irritability, sometimes the cause of insomnia, and nervous depression, which I have seen act as a factor producing menorrhagia. When much ovarian irritability exists, suppositories of opium, belladonna, etc., will be of service. *Ovarian irritability must be controlled.* Local pains in the epigastrium, morbid sensations in the limbs or ovaries or other parts of the body, may be relieved by stimulating liniments, belladonna or other anodyne plaster. Digestive disturbances may be treated as indicated under general rational principles at other periods of life.

If insanity be threatened, and any lesion of the pelvic organs be in evidence as a causative factor, controlling sedatives and local treatment should be promptly resorted to. Some plethoric cases apparently suffer from weakness. These may positively be strengthened by blood-letting. In some of them nature indicates the remedy by hemorrhage from some point in the system. When this does happen, it should be carefully watched and controlled, if necessary. Bowels should be kept normal and kidneys watched that no insidious trouble, as Bright's or diabetes, develop. Alkaline waters are valuable in such cases.

Women should be informed of the indications of approaching climacteric that they may aid us in directing a physiological process, rather than wrongfully interfering with it, by trying to re-establish a previously normal flow. Marriage during this unsettled period is to be discouraged, even though the woman feels the stress of more exalted sex appetite than she had ever known before. Tilt says "That experience teaches him that exalted sexual appetite at this time is a morbid impulse, dependent on some neuralgic or inflammatory condition of the uterus or ovaries." Marriage at this time, or too frequent sexual intercourse in the married, may result in obstinate uterine disease, menorrhagia, or cancer, or some women may become insane.

Hygienic regulation of all the functions and habits should be insisted upon, especially early hours. Remembering the importance of the crisis, the medical attendant must deal with all conditions, as they arise, with tact, patience and tenderness, soothing, guiding, and directing the mind from gloomy views of self or surrounding objects, wooing it back to health as time passes, till the ordeal is passed, and the woman stands again with herself well in hand, strong and able to confront the duties and responsibilities of her domestic life, to find joy and comfort, indescribable in administering to the comfort, and contributing to the happiness of those around her.

Discussion of Papers in Symposium on Endocrinology.

Dr. J. B. Tuttle, *Craigsville*: The general tendency in the last year or two has been to criticise endocrinology, and some of the criticisms are probably deserved. However, various other things in medicine have deserved and gotten the same criticism and still produced great benefit. Only in the last eleven years has endocrinology come into modern consideration. Before this we knew something of the thyroid, but outside of that, nothing. Not only endocrine products, but digitalis and other useful drugs have been commercialized by the manufacturers. We should not get excited about that. Be careful not to prescribe worthless products and they will soon disappear. Of course, this and many other subjects have been carried to extremes. The course of the advance of medicine is from one extreme to another.

In the last eleven years endocrinology has given many things to medicine which, if taken away, would set us back tremendously. We would not know how to practice medicine if it were not for endocrine products of late years. The whole subject has been one of great benefit to medicine.

Instead of each individual trying to develop something further in endocrinology, we should have every phase of the subject studied by some well organized and well financed commission, who could put definite things before the profession.

In hyper-endocrine conditions we have learned to reduce hyperpituitarism by X-ray, and during the last twelve years X-ray therapy of the thyroid and thymus glands has come in.

There is much criticism of the statement that there is some pituitary epilepsy. Five to eight per cent of these cases are due to change in the pituitary gland. We have had clinical evidence and X-ray evidence before arriving at this conclusion. There are pituitary or bilateral headaches, the kind you could feel if you could push your fingers through your temples, which yield to pituitrin. And there is the use of pituitrin in obstetrics. I think that if the profession had to do away with the cure of some group of epilepsies and a small group of headaches, and the use of pituitrin in obstetrics, it would lose much. And what if we had to discard insulin from medicine! And in the suprarenal field, adrenalin has not only remarkable internal value, but we would hate to give it up even in asthma, and in its local application we can hardly treat ear, nose, and throat conditions without it. Ovarian extract has great relation to menopause troubles when the menopause is either at the proper time or artificial.

And all these things have come of endocrinology in the last eleven years. We ask that people do not prescribe things promiscuously, nor, on the other hand, try to hold back the future of endocrinology. In the next ten years many beneficial things will come out of endocrinology unless criticism causes us to lose interest. There is a great deal to be gained if we go at the problem carefully.

Dr. B. R. Tucker, *Richmond*: I have something to say in answer to Dr. Tuttle. In the first place, endocrinologists brought this period of criticism on themselves. In the second place, the point he made has little relation to endocrinology. Endocrine therapy is the replacement of gland products which have been insufficiently produced in the body. The points brought out by Dr. Tuttle are not applicable to endocrinology, but to pharmacology. No one could assert that muscle tissue in the body has the same effect as the injection of muscle tissue extract. Although striking effects may be produced by it, they are not physiological but pharmacological. I don't want to discuss these pharmocological reactions, but if, according to dealers' statements which were given you just now, six million dollars are expended each year in endocrine products, some of them worthless, and we physicians are responsible, we should take this very seriously, and we should learn that ninety-five per cent of what we give by mouth never enters the system. This is certainly food for thought.

Dr. J. N. Upshur, *Richmond*: This field is too wide to be covered in an ordinary paper. I am very much interested in it in connection with the climacteric. Endocrinology is only part of this broad field. Symptoms of so grave a nature as those found in this condition keep us on the alert. It tests our skill to help a woman at this period. When the climacteric begins, there are early vague symptoms before you can center on the fact that it is a climacteric condition. One of the symptoms of value to me is a sensation of tingling beginning in the arm and running to the fingers. One cannot treat these cases according to a set method. Each one is individual. One must enjoin patience on these patients. Teaching them self-control is the important thing.

REPORT OF SEPTIC CASES TREATED WITH BICHLORIDE OF MERCURY INTRAVENOUSLY.*

By R. BRUCE JAMES, M. D., Danville, Va.

In reporting the following cases I am sorry not to have any laboratory reports to make on them. They were just such cases as a physician sees in a day's work and there was no opportunity or real necessity for blood counts or bacterial cultures so far as treatment was concerned, but such records have their value and sometimes carry much desirable information. The treatment and deductions are entirely empirical and I submit them for what they are worth.

Case 1.—In August, 1919, I delivered a young woman, Mrs. M., third pregnancy, a healthy child. Immediate surroundings were as good as the average home affords. The labor was normal in every way and I had no reason to anticipate trouble, but as sometimes happens, in spite of our best care, some of these patients become infected and develop fever, which this young mother did on the third day. Each succeeding day found the fever higher and higher, with chills, rapid pulse and breathing, flushed face and all the cardinal signs of a rapid and serious puerperal sepsis, which, according to my experience, means a death certificate a little later on. I asked Dr. S. E. Hughes to see her with me. He agreed she was a desperately ill woman, but suggested nothing more than I was doing for her, which was about all that was customary in such cases, such as disinfecting the vaginal tract, cauterizing with Churchill's Tincture all tears and abrasions about the vagina and cervix. As for drugs, I knew of none of value in such cases. But, in spite of all my efforts, she was surely slipping away. One night, at this juncture, I picked up a medical magazine and read an article by Dr. M. L. Dalton, of Floyd Court House, reporting just such a case successfully treated by intravenous injections of bichloride of mercury. I decided to try this measure the next morning if the patient were not better. The next morning she was not improved, but surely slipping a little closer towards the grave. So, with fear and trembling I dissolved one-half grain of bichloride of mercury in ten c.c. of distilled water and introduced the same in a vein. On my next visit, about six hours later, I found her temperature reduced, no chills, pale face, pulse slower. By next morning she was without fever and hungry. She rapidly recovered with no return of fever or other untoward symptoms.

Case 2.—Mrs. L. B. E., young woman, second pregnancy, delivered July 12, 1920, a healthy child, normal labor, good surroundings, no trouble anticipated. But on the third day I found her with fever, which increased day by day. She had chills, high fever, rapid pulse, muddy complexion.

She looked septic. I completed the vaginal toilet, as usual in such cases, with no improvement. On the next day, the fifth day after delivery, I gave one-half grain bichloride in vein. On the next visit she was better, but still had some fever, rapid pulse. On the second day following I gave her one-fourth grain bichloride in vein. After this she rapidly improved and was soon out of danger.

Case 3.—Mrs. R. H., young woman, first child, excellent surroundings, delivered a healthy child, labor normal in every particular, except she had a slight tear of perineum, which I repaired with three silk worm-gut sutures. I was called out of town and left this case in

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

care of Dr. I. C. Harrison. I felt uneasy about her for she had a slight rise of temperature on the third morning, my last visit to her before leaving. About the sixth day after delivery I had a telegram from her husband, saying she was desperately ill. On my arrival at her bedside I found a well advanced case of sepsis, temperature high, chills, rapid pulse and respiration, flushed face and glassy eyes and anxious expression. I at once removed all sutures from vaginal tear, cleansed the vagina, cauterizing all raw surfaces and waited for results. She did not improve, but grew worse. I gave her one-half grain bichloride in vein. In twelve hours she was free from fever, no chills, pulse and respiration about normal. She made a good and uneventful recovery from this time.

I have seen some half-dozen other cases with other doctors in which this treatment was used with good results.

The following two cases were sepsis of different origin:

Case 1.—A lad, age 10, seen with Dr. S. E. Hughes. Patient was running a high, persistent fever, which was rapidly exhausting his vital forces. He had been infected by a wound on his leg near the ankle, a very slight wound in which the skin was scarcely broken. The infection was serious and apparently uncontrollable under the usual treatment. I advised one-fourth grain bichloride in vein, which was given by Dr. Hughes. Within six hours the patient showed marked improvement, but still had some fever. Twenty-four hours later another dose was given him, with a complete cessation of all symptoms and the boy was soon well.

Case 2.—July, 1924, I was called to see a husky young farmer, who had developed fever, followed by chills and more fever. It was the third day I was called and found him well along in a case of malarial chills and fever, as the mother thought, and so did I for a while, until investigation showed up something more interesting. On further examining and questioning, his mother suggested that he show me a sore on his leg. He stuck his foot from under the cover, saying it did not amount to anything, which proved to be true of the sore itself, which was most insignificant, more like an inflamed insect bite, but running upward from the sore, which was near the ankle, were streaks of red following the lymphatics, spreading like flames of fire over the inside of the thigh. So this infection, and not malaria, was the cause of his trouble. I decided to try the old line of treatment in such cases. I gave him a calomel purge with quinine to follow and ichthyol on the sore and inflamed leg. I did not see him until the next afternoon, twenty-four hours later. He could take no food, with chills and sweat and great prostration. I immediately gave him one-half grain bichloride in vein. I left him for about an hour and visited a neighbor. On my return I found him in great distress, aching all over, chills and vomiting and purging. Just such reaction as we sometimes see after an intravenous salvarsan. This is the only time I have seen any reaction after giving this treatment, except severe purging, which occurs in most cases. I could do nothing further for this young man, so I left him for the night. The next afternoon I found him without fever or chills, the redness had left his legs and he was hungry. In other words, he was well. I did not see him again, but was informed by his people that he went to work in the next few days.

In these cases I have reported, and in some I have not reported, the treatment acted as much as specific as does antitoxin in diphtheria. If used early in the infection, before secondary sepsis develops, it is an absolute specific. The results permit of no doubt in the mind of the physician as to the reliability of the treatment in these cases. He knows he cured his patient, which honor is, under most circumstances, secretly divided with Mother Nature, the old lady being entitled to about nine-tenths of it, though he does not proclaim it from the housetop. Now, you may ask me, did this brilliant result follow in all septic cases treated by this method? Let me answer by reporting another case, which was not so fortunate.

Mrs. J. W. C., second child, had placenta praevia, full term. By dilatation and version I succeeded in delivering a dead child, without great loss of blood. She had not been well, complained of abdominal pain and looked sallow during the latter part of her pregnancy. On the second day she developed fever, the pain over left ovary. The pain increased along with the fever, which continued to rise from day to day, with chills and sweats. I gave her one-half grain of bichloride in vein, with only temporary abatement of the symptoms and she derived no benefit from the treatment. The pain in her side extended to the abdomen

and she died on about the tenth day of septic peritonitis.

Now the points of infection in this case were within the abdomen pus tubes in all probability. It is needless to say that she had much other treatment from many doctors but the only thing which would help her she did not get was an abdominal section with removal of all infected points, for without the removal of such points of infection treatment is of little avail. It is a condition under our present knowledge which Nature only can handle and she most often fails.

In conclusion, I will say that in primary infections where we can get at and disinfect the original wound, before secondary foci of infection have set up, the bichloride in the vein will take care of the bacteria in the blood stream and cure the patient.

It will not disinfect pus sacs or secondary foci that can not be otherwise reached.

For instance, in phlebitis, when secondary, it gives no permanent relief, though in most cases it gives a temporary bentfit. I have often heard physicians deplore the fact that we have no purgative that can be administered hypodermically with effect.

Bichloride intravenously is certainly such a purgative, but I am not sure that such a remedy is an unmixed blessing; for a rebellious stomach has saved many a patient with intestinal obstructions and compelled surgical aid before it was too late. In this and many other instances Nature is wiser than the Doctor, and to circumvent her by the hypodermic or intravenous route is not always best for the patient. Probable injury to the kidney has been a theoretical objection to the use of bichloride in such doses. But we find in practice that it does not affect the kidney at all. In all cases I have watched the kidney output carefully, and in no case has there been any deleterious effect whatever on these organs.

Discussion.

Dr. M. L. Dalton, *Roanoke*: I have used this treatment in hundreds of cases of all kinds of infections. It is my stand-by in typhoid fever, and, in fact, all bacteremias. I use it in pneumonia, and find that the fever abates and the crisis comes earlier, occasionally three days and usually before the seventh day. I made inquiry of the other physicians in the same community that did not use this treatment and they told me that they rarely had the crisis before the ninth day. In 1915-17, we had a lot of pneumonia in Floyd County. Before the "flu" I had a record of 187 cases, with a mortality of less than five per cent. When the "flu" struck us, all remedies failed me. Yet I did as well with this remedy, and, I think, better than with anything else. When I gave it in "flu," with apparent beginning of pneumonia, it often seemed to abort it. It looks heroic to give one-half to one grain of bichloride of mercury. I had followed the writings of the originator, Dr. H. E. Jones, of Roanoke, but could not get myself to use it in this dosage. I was forced into it. I had a case of malignant typhoid fever. Temperature on fourth day after he began to complain was 105½, pulse 135, bowels tympanic and moving voluntarily, profound delirium. I saw that the usual remedies would certainly fail in this case. I gave three-quarters grain and returned the second day to find the patient no better; gave three-quarters grain more; returned the third day and patient was no worse; gave one-half grain and he began to improve and made a rapid recovery. This is only one case. I have used it in many.

A case of ileocolitis was brought to my hospital, a child eight months old, bottle fed. Baby had been sick about ten days and had been treated by two splendid physicians. Child was growing worse. The usual remedies were used; bulgaris bacillus tablets and others. It was necessary for this child to live to inherit a large estate. Besides the usual symptoms, the child had meningitis as well, and kept its little hand going in a wave-like motion over its head. The baby had the typical meningeal moan and it slept practically none the first two nights in the hospital. I was afraid it was going to die, as nothing I was doing did any good. My brother, Dr. J. B. Dalton, was with me.

As he had seen Dr. Jones use this remedy, and had used it himself, he suggested it. I would not consent at first, but soon gave in. He administered the remedy and in half an hour the child went to sleep and slept for twenty-four hours, only arousing for nourishment about every three hours. The baby made a nice recovery and left the hospital in ten days.

With septicemia and wound infection, I have had good results, the crisis coming in twelve and very often in six hours.

In gonorrheal ochitis I get good results. A young traveling man who had been in a hospital in another town for four weeks, came to our town and had a chill, temperature 104½, with much swelling and pain of testes. I gave half-grain bichloride of mercury and had rapid abatement of symptoms. The patient left the hospital in one week. Saw him eight months later and he had no return.

In post-operative pneumonia it acts well. Given early, I have not had the temperature to go longer than twenty-four hours in what looked to be a serious case of pneumonia after a laparotomy, with rapid rise of temperature, congested lung, cough and difficult breathing.

THE INCIDENCE OF DISEASES OF THE LOWER AIR PASSAGES SECONDARY TO INFECTIONS IN THE UPPER RESPIRATORY TRACT.*

By T. DEWEY DAVIS, M. D., Richmond, Va.
Associate in Medicine, Medical College of Virginia.,

Acute pyogenic infections of the mucous membranes of the larynx, trachea and bronchi are frequently associated with, or secondary to, infection in the nose, throat or accessory nasal sinuses. This relationship is recognized most

*Read before the fifty-fifth annual meeting of the Medical Society of Virginia, at Staunton, October 14-17, 1924.

commonly in the ordinary acute cold which begins with a rhinitis or pharyngitis and then passes into a tracheitis and bronchitis, to run, as a rule, its self-limited course.

In chronic pyogenic infections of the lower respiratory tract, however, such as chronic bronchitis, bronchiectasis, bronchial asthma, abscess of the lung, etc., the relationship to a primary focus of infection in the mouth, throat, nose or sinuses is often not considered and, therefore, not recognized. Recent experience having convinced me that this association between primary infection in the upper respiratory tract and secondary involvement in the trachea and bronchi was very frequent and of considerable practical significance, I have reviewed our case histories for the past six years. During this period a diagnostic study was made on three hundred and twenty-two patients who were found to be suffering from chronic pyogenic infections in some portions of the respiratory tract. For the purpose of this review, I have excluded patients with tuberculosis, syphilis and malignant disease, and also instances of chronic cardiac failure, pneumoconiosis and bronchial irritation or sensitization to dust, food proteins and poisonous gases. In the study of these patients, advantage has been taken of most skilful and painstaking examinations by competent nose and throat colleagues, supplemented in the majority of cases by X-ray films of the lungs and accessory nasal sinuses.

In our series there were 84 cases diagnosed as chronic bronchitis. Twenty-three of these patients were not seen by a rhinologist. Of the remaining 61 patients, 58 were found to be suffering from a chronic focus of infection in the upper respiratory tract. In other words, 95 per cent of our patients with chronic pyogenic infection of the bronchial mucous membrane were shown to have definite infection in the nose, throat or sinuses.

The figures in regard to bronchial asthma are almost as striking. This diagnosis was made in 85 patients in our series. Twenty-three of these sufferers did not have a special examination of the nose, throat or sinuses. Of the 62 patients who did have this study, 57, or 90.3 per cent showed evidence of infection in the upper respiratory tract. Most of the patients in this series were adults whose symptoms did not date back to childhood and in whom the asthma was more likely to be due to infection than to food sensitization or animal emanations. Many of these patients, as a matter of fact, were given protein skin tests with negative results.

A very interesting observation has been the frequent complaint of cough in patients with chronic infections in the nose, throat or sinuses, in whom no gross demonstrable lesions or physical signs could be determined in the bronchi or lungs. Coakley[1] has recently stated that cough is a frequent symptom of paranasal sinus infection in children and, to a less extent in adults. In our series there were 147 patients with uncomplicated upper respiratory tract infection. Surprisingly enough, 72 of these patients, or 49 per cent, complained of chronic cough. Many of these patients feared pulmonary tuberculosis and with good reason since to the lay mind a continued cough implies this disease. Occasionally the chest examination in these patients revealed a few persistent crackling and fine moist rales over both apices with no change in the breath sounds or voice transmission. The sputum, if any could be obtained, was negative for acid-fast organisms and the X-ray plates of the lungs showed no suggestion of parenchymatous lesions. Subsequent observation of the course and progress of these cases has seemed to indicate that they were instances of so-called "apical catarrh," as described by Dunham and Skavlem,[2] secondary to the infection in the nose, throat or sinuses.

Reference to the current medical literature discloses quite a few articles dealing with the subject under review. In many instances, however, the statements made are in the nature of suggestions and carry little supportive evidence. Dennis,[3] however, has reported a series of 24 cases of bronchiectasis and 28 cases of bronchial asthma. Of these 52 patients, 47 had definite accessory nasal sinus infection. Incidentally, he states that a diagnosis of antrum infection cannot always be made by clinical and X-ray examination, and that any suspicious case justifies an exploratory operation. Dunham and Skavlem[2] found sinus infections in all of 25 cases of bronchiectasis; and in 42 patients with "apical catarrh," 39 were found to have disease of the nose, throat or sinuses. Hett,[4] from his experience in the nose and throat field, reported that he would like to make the dogmatic statement that all cases of chronic bronchitis are dependent on infection in the upper air passages but that his experience was hardly varied enough to ab-

solutely justify such a broad assertion. Perkins[5] states that no predisposing factor in chronic bronchitis is as important as upper respiratory tract infection. Von Zelinski,[6] Webb and Gilbert[7] and Tribble[8] are among others who insist that careful examination of the nose, throat and paranasal sinuses should be a routine in patients suffering from bronchial tract infections. In contrast to these views it is evident that many clinicians do not appreciate or recognize the relationship between infection in the upper and lower portions of the respiratory tract, and in the very exhaustive monograph by Hoover[9] on the diseases of the lungs and bronchi in the recently published Oxford Medicine, no mention is made of this association.

It is quite possible, as some authors insist, that infection about the gums and teeth may also play an important role in the production of secondary lesions in the bronchi and lungs. In a recent study of 37 cases of pulmonary infections characterized by abscess formation or gangrene, Pilot and Davis,[10] isolated the fusiform bacillus with spirochetes characteristic of Vincent's disease. These organisms are found very commonly in ulcerative stomatitis (so-called trench mouth), and are often present in enormous numbers about the teeth and tonsils.

In view of our experience and the expressed opinion of other workers, both in the field of internal medicine and nose and throat surgery, every patient who complains of cough, or presents symptoms or physical signs of a non-tuberculous infection in the lower respiratory tract, should be examined by a competent nose and throat specialist. Our experience has further demonstrated that thorough treatment of all lesions in the nose, throat and sinuses is very essential for the relief of chronic pyogenic infections in the lower respiratory tract. It happens, at times, that treatment of these local infected areas is unsatisfactory, or that it is undertaken at a late period in the chronic illness when the secondary infections in the bronchi and lungs have become so fixed as to be almost irremediable. Not infrequently very persistent and radical surgical procedures are indicated and no real success may be expected from half-way measures. In addition, many of our patients have been very much benefited by the intelligent employment of autogenous vaccines prepared from cultures of the sputum alone, or in other cases from combined cultures made from the sputum and the nose or throat secretion. Symptomatic treatment should not be omitted, but it should be emphasized that patients with chronic pyogenic infections in the bronchi and lungs do not get well until all foci of infection are radically treated and removed from the mouth, nose, throat and accessory nasal sinuses.

References.

1. Coakley, C. G. Paroxysmal Cough, a Frequent Symptom of Infection of Paranasal Sinuses in Children. Southern M. J., 17:38, 1924.
2. Dunham, K. and Skavlem, J. H. Sinus Disease and Lung Infections. J. Radiol., 4:37, 1923.
3. Dennis, F. L., Accessory Nasal Sinus Infection with Complications; Analysis of Cases Associated with Asthma and Nontuberculous Chest Lesions. An Otol. Rhinol. & Laryngol., 33:451, 1924.
4. Hett, G. S. Chronic Bronchitis in Relation to Nose and Throat Infections. Brit. M. J., 2: 1142, 1923.
5. Perkins, J. J. Chronic Bronchitis. Brit. M. J., 2:1137, 1923.
6. Von Zelinski, W. F. Chronic Bronchitis of Nasal Origin. M. J. & Record (supp.), 119:9, 1924.
7. Webb, G. B., and Gilbert, G. B. Bronchiectasis and Bronchitis Associated with Accessory Sinus Disease. J. A. M. A., 76:714, 1921.
8. Tribble, G. B. Sinusitis from the Standpoint of the General Practitioner. Virginia Med. Monthly, 51:294, 1924.
9. Hoover, C. F. Diseases of the Bronchi. Oxford Medicine, II:1.
10. Pilot, I., and Davis, D. J. Studies in Fusiform Bacilli and Spirochetes. IX. Their Role in Pulmonary Abscess, Gangrene and Bronchiectasis. Arch. Int. Med., 34:313, 1924.

608 *Professional Building.*

Discussion.

Dr. Douglas VanderHoof, *Richmond*: Dr. Davis has brought out several points of great interest. In the first place he has shown that most instances of chronic non-tuberculous infections in the lungs, trachea, etc., are secondary to pyogenic infections in the nose, throat and paranasal sinuses. His statistics in regard to chronic bronchitis and bronchial asthma are striking and very instructive.

A second interesting point emphasized by Dr. Davis is that nearly fifty per cent of patients with chronic infections in the nose, throat or sinuses, present cough as a symptom. This is illustrated not infrequently by the patient with a chronic antrum infection. When the antrum fills up he may have a frequent unproductive cough, sometimes resembling whooping cough, which disappears promptly when the antrum is punctured and irrigated. When a patient consults us for a cough, we do not think first of tuberculosis but rather of a chronic infection in the nasal sinuses.

It is important to realize that proper treatment of sinus infections is difficult and prolonged, and the patient should be given to understand that it is not a question of one or two operations to drain the sinuses but of treatment by a competent rhinologist over a period of several months to a year.

One other point of interest is the work that Dr. Davis is doing with autogenous vaccines. He secures cultures from the nose, throat, sputum and any infected area. Multiple vaccines are then prepared

from every source and intradermal tests are made with each separate vaccine. A positive skin test to any special organism suggests sensitization, the other vaccines are discarded and the patient is treated with that special vaccine to which he reacts. Recent results secured by Dr. Davis along this line have been very encouraging.

Dr. Fred. E. Hamlin, *Philadelphia*: Dr. Davis's paper is very interesting to me as it is closely associated with the special line of work I have been doing at the University of Pennsylvania in otolaryngology and bronchoscopy.

One point which Dr. Davis forgot to mention was a possibility of a foreign body in the bronchi giving rise to symptoms similar to bronchitis caused by upper respiratory infection.

One case which I recall was that of a safety pin which had been in the bronchus for several years before being diagnosed, during which time the patient was treated for tuberculosis. An X-ray examination was made of the chest and a safety pin was found located in the bronchus. The pin was so corroded it was necessary for Dr. Jackson to remove the pin in three parts.

In other cases of foreign bodies of organic nature, such as seeds and kernels, a violet laryngotracheobronchitis is started at once with toxemia and fever. These organic foreign bodies frequently act as a valve in the bronchus and will give physical signs of obstruction with emphysema, bronchiectasis and atelectasis, depending upon the degree of obstruction.

Dr. T. D. Davis, *Richmond*, closing discussion: Dr. Hamlin brought up some very interesting questions. Unfortunately we have yet to see one of these cases. I would like to say, however, that all of our cases get an X-ray examination of the chest even if they do not show any gross lesions, but diffuse infections which are not typical of tuberculosis. We get plates to be certain that we are not dealing with anything unexpected.

MYOCARDIAL DISEASE AND SURGICAL CONDITIONS OF THE ABDOMEN.*

By J. MORRISON HUTCHESON, M. D., Richmond, Va.

It is well known that disease of the myocardium often pursues a course so insidious as to render its recognition extremely difficult. This is particularly true of arteriosclerotic lesions that involve the coronary vessels and produce latent changes which, under the stress of excessive physical exertion or surgical operation, may result in acute cardiac failure.

It is also well understood that so-called angina pectoris, one of the common symptoms of coronary disease, not infrequently manifests itself by pain in the upper abdomen. Notwithstanding the emphasis that has been placed on these facts there occur cases of myocardial disease in which the pain is so atypical and the cardiac signs so inconspicuous as to mislead the unwary into a diagnosis of disease below the diaphragm. The danger of operation in these cases need not be emphasized. When the coronaries are diseased sudden death from thrombosis is always a possibility and the strain of operation greatly increases its likelihood.

Levine and Tranter have reported, from the Peter Bent Brigham Hospital, two cases in which myocardial disease produced symptoms and signs indicative of acute conditions in the abdomen calling for operation. One patient died on the table during exploration. In the other case operation was deferred on account of the presence of sugar in the urine and death occurred forty-eight hours later. Both showed at autopsy extensive degenerative changes in the myocardium with thrombosis in the anterior coronary artery. No pathology was found within the abdomen.

I wish to present three cases in which grave myocardial disease was mistaken for abdominal conditions requiring surgery. In the first case, inflammation of the appendix complicated the picture, and a cardiac death occurred following operation. In the second, operation was postponed by the surgeon and subsequent observation revealed the true nature of the malady. The third patient survived—a laparotomy with drainage of the gall-bladder but apparently his symptoms were caused by coronary disease of which he later died.

Case 1: A white farmer, 49 years of age, was admitted to the surgical service of the Johnston-Willis Hospital November 13, 1919. He complained of attacks of cramp colic which had occurred at irregular intervals since July, 1918, and which seemed to be increasing in frequency and severity. Pain would begin suddenly in the lower abdomen and would soon be followed by nausea and later vomiting, which afforded relative relief. In several of the attacks the pain appeared to radiate upward and settle under the lower sternum. Following the attack, which usually required morphine for relief, the lower half of the abdomen remained sore for several days. There had been slight indigestion manifested by heaviness and soreness in the pit of the stomach but no constipation, jaundice or dysentery. No shortness of breath, palpitation or swelling of feet had been noticed, and no pain in the chest except that radiating under the lower sternum during the abdominal attacks. He had led a very active life, doing hard physical labor and had never been incapacitated except by the spells for which he sought treatment.

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

Examination showed a tall, spare man within a few pounds of his maximum weight. There was no gross evidence of infection in the upper air passages and routine examination of reflexes was negative. The heart appeared slightly enlarged, the apex being palpated in the fifth interspace and reaching just beyond the nipple line. The sounds were of good quality with moderate accentuation of the aortic second and no murmurs. Rhythm regular, rate 84 per minute; blood pressure 184—112. Lungs entirely clear; liver dulness from sixth rib to costal margin. The abdomen was not distended and no masses were felt. The cecum was somewhat distended and quite sensitive, pressure producing pain which radiated toward the ensiform. There was also slight epigastric tenderness, and an impulse over the right inguinal canal on coughing. The urine contained a trace of albumen and a few pus cells and casts. Phthalein 60 per cent in two hours. Blood, including Wassermann, negative. X-ray of the gastro-intestinal and urinary tracts and gall-bladder revealed a spasm at the pyloric end of the stomach which was interpreted as suggestive evidence of gall-bladder disease. The appendix was not visualized.

In view of the evident pathology in the appendix and possibly also in the gall-bladder, operation was decided on and done November 19th through a right rectus incision. On account of the hypertension, the risk was not regarded as particularly good but in the absence of obvious signs of cardiac weakness and with good kidney function, surgical intervention on definite indication was held permissible. The operation lasted thirty minutes and consisted of exploration of the gall-bladder and pyloric end of stomach, with removal of a large inflamed appendix recorded as subacute. The pulse did not go above 88 and the patient was returned to his room in good condition.

During the following night there was considerable retrosternal pain of dull character and the pulse rose to 120 per minute with a temperature of 100. The pain was said to be similar to that described as having occasionally followed the abdominal attacks, apparently induced by them. It was more or less continuous and showed a tendency to involve the heart area but did not radiate to the shoulder or arm. A diagnosis of angina pectoris was made and relief by nitrites attempted, but the pain increased in degree, requiring morphine in considerable quantity for its control. On December 1st, eleven days after operation, the pain suddenly became more severe than usual, cyanosis and collapse rapidly developed, with death in a few minutes. Autopsy was not permitted.

Death in this case was probably due to coronary thrombosis, though in the absence of postmortem studies the exact pathology can only be surmised. It seems clear, however, that some latent cardiac defect, not sufficient to interfere with previous function but too extensive to permit the increased work incident to operative strain, was responsible. Little or no evidence of myocardial disease was detected before operation, but in the light of subsequent events it seems possible that a more painstaking analysis of the history might have led to a different interpretation, and that an electrocardiogram, had this been available, might have suggested disease involving the coronaries.

Case 2: A man, aged 56, entered the Johnston-Willis Hospital, January 28, 1921, for gall-bladder operation, having been examined in another clinic and a diagnosis of gall-bladder disease made there. He complained of attacks of epigastric pain which had occurred at irregular intervals for several years. At first they came only once or twice a year but had gradually increased in frequency up to one every day or so. The pain began in the pit of the stomach, was severe in character, often requiring morphine for relief, and was frequently accompanied by nausea and vomiting. With the later attacks there had been an intense constriction around the lower chest with some difficulty in breathing, profuse perspiration and a feeling as if he were going to die. Between attacks there had been moderate shortness of breath on exertion, occasional palpitation and frequent spells of flatulence and belching. Examination showed a very slight cardiac enlargement with no evidence of decompensation. The peripheral vessels seemed somewhat thickened but smooth and straight; blood pressure 120-82. There was distinct tenderness just below the right costal margin. Blood negative. Urine contained a trace of albumen and an occasional hyaline cast. Gastro-intestinal X-ray made previously had revealed indirect evidence of gall-bladder disease. Electrocardiogram showed right ventricular pre-

ponderance with inversion of the T-wave in leads II and III.

From these findings it seemed likely that degenerative changes in the myocardium were present and might explain the attacks. Operation was accordingly deferred. On the second night after admission to the hospital an attack of pain occurred in which the accompanying thoracic constriction, difficult breathing and sweating pointed strongly to angina and, when prompt relief followed the administration of nitroglycerin, the diagnosis appeared to be established. Whether gall-bladder disease existed or not has never been determined. The patient is still living and with greatly restricted exercise and the occasional use of the nitrites he is reasonably comfortable.

Case 3: A retired business man, aged 64, was seen September 10, 1923, with obvious cardiac decompensation. Several years previously he had suffered from attacks of epigastric and substernal pain for which he consulted a surgeon and had his gall-bladder drained, no stones being found. The attacks of pain continued, however, and in June, 1923, he had a very severe one lasting about 24 hours and requiring several hypodermics of morphine for relief. Following this attack he became extremely short of breath, and often had to sit up all night in order to breathe. Examination showed obvious decompensation with passive congestion of lungs and liver. The heart was greatly enlarged but no murmurs were present. Peripheral vessels thick, rough and tortuous; blood pressure 116-89. Electrocardiogram showed right bundle branch block. On rest and thorough digitalization the compensation improved and the patient was able to get around in comparative comfort. Electrocardiogram made two months later showed the block still persisting and sudden death occurred shortly afterwards.

This case was undoubtedly one of arteriosclerosis involving the coronaries and manifesting itself first by atypical attacks of angina which were mistaken for gall-bladder disease. Operation, of course, failed to give relief, but fortunately failed to cause death, which resulted later from coronary occlusion and general myocardial failure.

Myocardial disease capable of producing sudden heart failure may be the result of a variety of causes and manifests itself by a diversity of symptoms and signs. As a rule, however, the type most likely to afford difficulty in recognition is the degenerative process known as arteriosclerosis with early involvement of the coronary vessels. It is, therefore, in middle or late life that particular care is required in cardiac investigation lest the early signs of coronary disease be overlooked or misinterpreted.

In elderly individuals especially, any pain difficult to classify should bring the possibilities of coronary sclerosis into careful consideration. The pain of coronary disease is prone to be abdominal and is quite often accompanied by gastric distention, relieved by belching. It is often induced by chilling, overloading the stomach, or by unusual physical exertion, and may be the sequel of strain produced by some other disease as in the first case reported here. Pain may be mild or severe, but its degree should not be taken as an index of the extent of cardiac pathology. Where doubt exists as to the nature of an obscure pain, its coronary origin may at times be established by a prompt response to the nitrites.

When pain is present as a symptom of coronary disease, it is usually accompanied by one or more circumstances that furnish additional evidence of its nature, viz.: feeling of constriction in the chest, a sudden arrest of motion, a sense of impending death, pallor or sweating. At times pain is insignificant or absent and brief attacks of constriction, with or without the other signs, may be the sole manifestations observed.

Physical signs are of considerably less value in recognizing coronary disease than symptoms, as no single finding is in itself more than evidence of sclerosis that might involve the coronaries. A considerable number of cases are now on record in which sclerosis was confined exclusively to the coronary vessels with no other cardiac changes that could have produced physical findings. One should never make the mistake, therefore, of finally excluding myocardial disease on account of negative findings. I have recently seen a man of 56 who suffered a rather sudden cardiac failure following a prolonged attack of pain and loss of sleep occasioned by shingles. Prior to his collapse no evidence of myocardial disease was demonstrable by physical examination.

In the detection of obscure myocardial changes the electrocardiograph is undoubtedly of the greatest value. When the conduction

pathways are involved, as is often the case, the record is characteristic and furnishes positive evidence of disease that can be secured in no other way. The electrocardiograph is not to take the place of other methods of examination, but when judiciously employed it is an extremely reliable adjunct to our means for studying the class of cases under discussion.

In conclusion, I would emphasize especially the following points:

1. Grave myocardial disease may be latent, causing few or no symptoms or physical signs.
2. Early manifestations may be atypical angina or gastric distress, suggesting abdominal disease requiring surgical relief.
3. In middle-aged and elderly individuals especially, myocardial disease is always a possibility. The greatest care is necessary, therefore, in interpreting their symptoms and in determining their fitness for operation.

Professional Building.

DISCUSSION.

DR. KENNETH BRADFORD, *Staunton*: Dr. Hutcheson's paper is one of tremendous practical interest to every one of us who does general practice. When I was in medical school, and that has not been so very long ago in spite of appearance, I was taught that angina pectoris was always manifested by pain in the chest and extending down the left arm. That was so impressed upon us that if the pain had been in the right arm, even, we would have diagnosed it as other than angina pectoris. It is very important for general practitioners to realize that this pain can occur elsewhere than in the chest and left arm and the patient may present every symptom of an acute upper abdominal lesion. This is especially important when we realize that the treatment of the two conditions is diametrically opposite. Patients with organic myocardial disease should not be subjected to operation unless this is absolutely necessary to save life. The treatment is entirely different for gall-bladder disease. Sometimes we find ourselves in a very embarrassing position in confusing myocardial disease with anginoid attacks, with other diseases which are entirely different.

DR. J. N. UPSHUR, *Richmond*: I was not fortunate enough to hear all of Dr. Hutcheson's paper, but the question of myocarditis is always of great interest to me. I just want to emphasize one or two points in connection with the diagnosis. I think possibly it is the one lesion of the heart in which we overlook the diagnosis oftener than in any other. When myocarditis has come to the point where the muscles are so much softened that the heart is dilated and enlarged and death may occur at any time, when it is too late to do anything, the condition is easily recognizable. In my opinion, one feature in the diagnosis is always significant. When you apply your stethoscope or ear to the chest, especially if the subject is past middle age, and you hear in the heart valves sounds which are perfectly normal except that they sound far away or not as entirely clear as you might expect to find them, it is very significant as a diagnostic point.

I am probably alone in the opinion I am about to give, but, after a long life of experience, I object to giving patients with myocarditis digitalis, especially in the full doses used in these days. In cases of softened heart muscles, if you give digitalis in full doses, you may get spasm and a ruptured heart. I am not particularly friendly to digitalis. You never know just what it will do. When you get diminished frequency and increased tension, you do not know when you will have diminished tension and increased frequency.

I want to emphasize these two points.

DR. L. M. ALLEN, *Winchester*: In a condition where the diagnosis is so difficult I wish to emphasize the great importance of a careful examination before resorting to operation.

One case to illustrate the point: A man seventy years of age, a retired business man, had had pain in the upper abdomen for some time. He thought he had indigestion. A surgeon was sent for, and, without making a careful examination, he gave him a hypodermic and told him that he must be operated for gall-bladder disease. The patient did not take this advice, and less than a week after this I found him a typical case of angina pectoris with all symptoms. It was too late to do anything for him. He died less than twenty-four hours.

Dr. Hutcheson's remarks should be a warning to those over-enthusiastic surgeons who wish to operate on all cases of pain in the upper abdomen. We see and hear often from our patients that which illustrates this over-enthusiasm on the part of some surgeons. I repeat that it is most important to examine carefully before suggesting any surgical procedure.

DR. C. O. DEARMONT, *White Post*: Mr. Chairman, I want to ask Dr. Hutcheson's opinion on one case. A man, age 50, in good health until operation for appendicitis, was quite nervous following the operation. He developed what he took to be indigestion, and was treated for a while, but did not improve. We were suspicious of angina because of pains distributed in chest. One night I was called to see him in a typical attack of angina. He suffered violently from 12 o'clock to 3 A. M. During that time I gave him five hypodermics of morphine, ¼ grain each, and 1/100 of nitroglycerin. What would Dr. Hutcheson have done? I had to relieve that man. I did not know anything else to do. Was I justified in this? What would Dr. Hutcheson have done under similar conditions?

DR. K. D. GRAVES, *Roanoke*: I want to cite a case which I had this summer and ask Dr. Hutcheson's advice. This man was elderly, about fifty-six or sixty. He had recently passed an examination for a large sum of insurance, which showed that he had had a thorough physical examination. He was apparently in good health, and was working on his farm. One afternoon, when walking through his yard, carrying considerable weight, about sixty pounds, he kicked at a dog, and immediately fell to the ground screaming with pain. The usual medications were given, and he was apparently relieved. About nine the next morning he screamed again, and when the family went into the room they found him dead. On autopsy it was found that the heart had ruptured. There had been two stages in the rupture: the first had torn partly through the wall, and the second, apparently the attack of the morning, had torn entirely through. There was a clot in the pericardium.

The question came up about whether this was due entirely to the strain, or complicated by myocardial disease. The microscope found no evidence of myocardial disease. The cause of death was given by attending physicians as angina pectoris. I have been thinking a great deal of this question; whether there must have been myocardial disease,

or whether the sudden strain was sufficient to cause rupture of the heart.

Dr. J. C. Flippin, *University*: This discussion, and particularly the remarks by Dr. Bradford, brings rather forcefully to mind the indefinite manner in which the term angina pectoris is used. It is, no doubt, perfectly true that Dr. Bradford was taught as a medical student that angina pectoris is a condition characterized by violent pain in the chest, often, also, involving the left arm. Many modern cardiologists, particularly MacKenzie, recognize all grades of heart pain with varying etiology and significance. Heart pain, like stomach pain, may be very variable in its significance. As Dr. Hutcheson has pointed out, there is very great difficulty oftentimes in accurately distinguishing between heart pains and those arising in the abdomen, even with the aid of the modern refinements of diagnosis.

Dr. J. M. Hutcheson, *Richmond*, closing discussion: Dr. Dearmont describes what was probably a case of coronary disease with attacks of angina terminating in coronary thrombosis. The final situation is a grave and critical one and I am sure that he was justified in using large doses of morphine. All one can do under the circumstances is to keep the patient as quiet and comfortable as possible and hope that enough circulation is left to keep the heart going. The pain itself is probably a factor that would facilitate heart failure.

Dr. Graves' case is interesting. I can hardly conceive of a healthy heart muscle rupturing even under severe strain. There must have been some disease beforehand. Autopsies show that coronary infarcts occur even in patients with no symptoms.

We must realize that degenerative changes in the heart and vessels of an insidious character are common in the late years of life and may occur at a surprisingly early age. The symptoms are at times obscure and misleading. I recall the case of a man of thirty-nine, previously healthy, who was suddenly seized with "acute indigestion" and died in a few hours. Autopsy showed advanced coronary sclerosis with occlusion of a large branch.

TREATMENT OF HYPOSPADIAS—ANALYSIS OF TWENTY-EIGHT CASES.*

By CHARLES Y. BIDGOOD, M. D., Richmond, Va.

It has been within comparatively recent years that success has attended attempts to repair hypospadias frequently enough to justify operation, except in the glandular types, and, although many ingenious operations had been published, each with enthusiastic adherents, the concensus of opinion—as late as 1890—was that the deformity was irremediable in the vast majority of cases.

The origin of the modern conception as regards cure of hypospadias dates back to the work of Duplay, begun in 1870 and ended in 1880, and of Tiersch, in 1869. Previous to this, the results had been uniformly discouraging, although a few suggestions had been offered which are still recognized as good, such as the recommendation of Buisson in 1861 that the band causing the chordee should be divided transversely and closed longitudinally. But even in this, he was not thorough enough, and it was Duplay who advised section of the intracavernous septum.

In 1869, Tiersch produced his flap operation for epispadias, and Anger, 1874, first used this principle in hypospadias, Tiersch also advised perineal drainage of all cases, and was opposed by Duplay who favored the insertion of a catheter through the newly made urethra into the bladder. The point of contention may well be taken as an illustration of the fact that as recently as 1890 the fundamental principles were still mooted questions, and it is probable that the constant failures encountered were due more to failure to appreciate such princples, than to a dearth of ingenious operations. This is borne out by the fact that at the present time, using practically the same operations that were used then, much better results are being obtained.

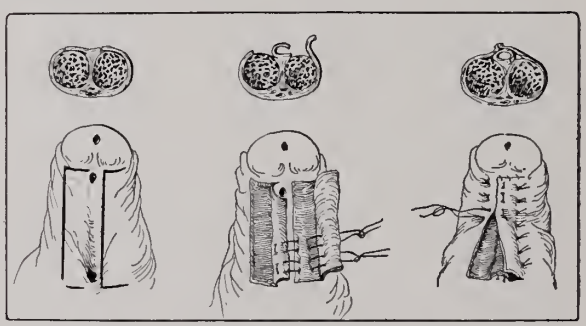


Figure I.—Anger Operation (After Tiersch). Showing also the arrangement of the flaps in sagittal section.

The Anger operation (after Tiersch) is shown in Figure I.

The reason for constructing flaps in such fashion was that the lines of suture were not in juxta position. This was first advocated by

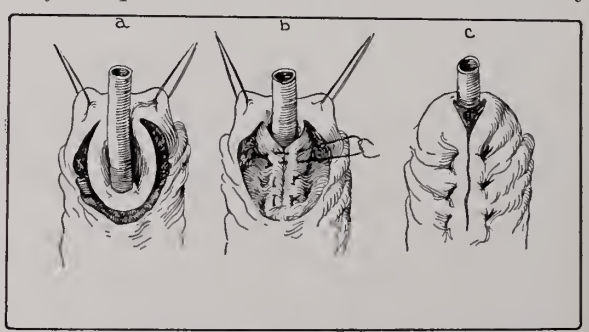


Figure II.—Duplay Operation. A Incision surrounding hypospadias opening and extending up on the glans. Tube in urethra. B. Construction of new urethra showing inversion of edges. C. Completion of operation.

*From the Brady Urological Institute, Johns Hopkins Hospital, Baltimore, Md.

Read before the fifty-fifth annual meeting of the Medical Society of Virginia, at Staunton, October 14-17, 1924.

Tiersch for the repair of epispadias. However, there is no account of his having used it for hypospadias.

The Duplay operation* is depicted in Figure II.

Of late, instead of placing the tube in the newly made urethra for drainage, a perineal drainage tube has been used. This operation is similar in principle to Anger's operation, since, in both operations, longitudinal flaps are raised on each side of the genital canal and are used to construct the new urethra.

The second type of operation recommended at this time is that of Bidder** (Figure III) which is illustrated below:

This operation consists of: 1. Perineal urethrotomy and excision of hypospadias opening; 2. Tunneling of skin from glans to perineal opening by means of a trocar; 3. Tiersch graft around a tube inserted in subcutaneous passage and sutured.

The author of this method lays great stress on (a) The graft should be 4 cm. wide; (b) The tube should be 20-21 F.; (c) A 19 F. sound should be passed on the tenth day.

Rochet* recommends that the tube used in the Nove Josserand operation be made from a scrotal flap.

The fourth type is that of Beck** (Figure V).

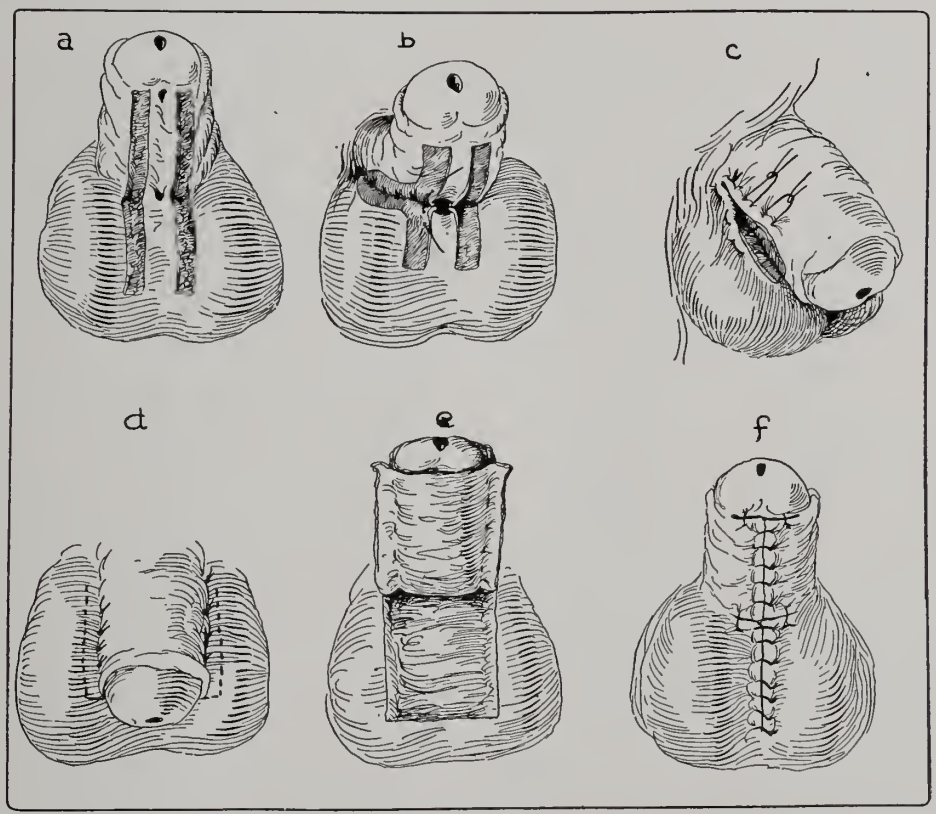


Figure III.—Bidder's Operation. A. Denuded areas on either side of genital canal and extending down over scrotum. B. Suture of penis to scrotum with inversion of edges. C. Completion of suture. D. Second operation; dotted line shows incision for freeing penis. E. Penis mobilized. F. Closure of skin.

This operation is similar in principle to the procedure advocated by Bucknall (Lancet, 1907), and enthusiastically championed by Churchman.†

The third type of operation shown in Figure IV, was developed about this time by Nove Josserand.‡

The success of this is dependent, in the glandular type, on the distensibility of the urethra. The disadvantage of this procedure is that it is liable to be followed by chordee.

It is evident, therefore, that the operations which are used at the present time had their birth in the last part of the 19th century, and that the increasing success in curing hypos-

*Archives Generales de Medicin, 1880.
**Deutsche Medische Wochenschrift, 1892. Vol. 2.
†Annals Surgery, 71, 1920.
‡Revue de Chirurgie, 4, 1898.

*Centralblatt f. Chir. 1900, No. 34.
**New York Journal, 1898, LXVII.

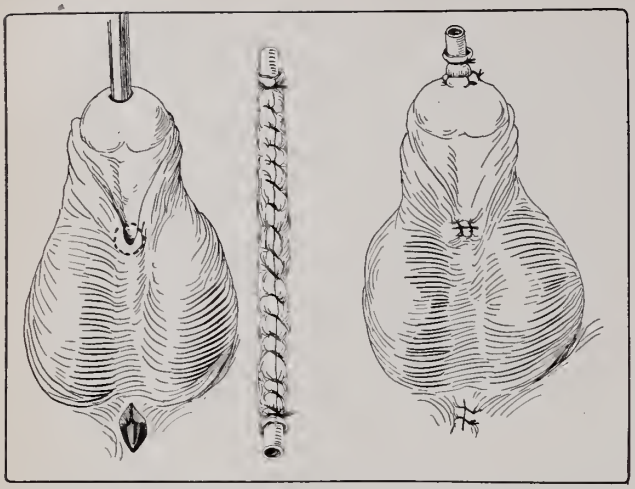


Figure IV.—Nove Josserand Operation. First stage: excision of hypospadias opening with perineal urethrotomy and tunnelling by means of a trocar from the glans to the perineal urethrotomy wound. Second figure shows Tiersch graft wound around a catheter. Third figure shows the hypospadias opening closed and the perineal opening closed, the Tiersch graft inserted into the new canal and sutured to the glans. The catheter running into the bladder for drainage.

padias in the last twenty years has not been due to improvement in the type of operations used, but is occasioned by a more lucid comprehension of the fundamental principles underlying all plastic surgery. These basic rules

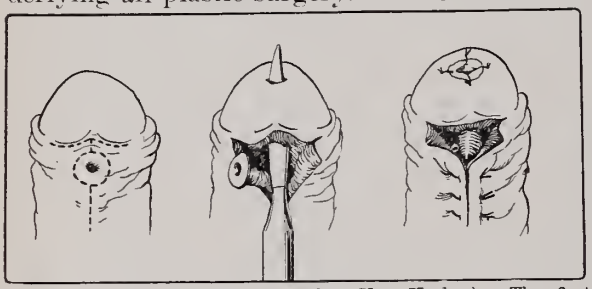


Figure V.—Beck's Operation (After Von Hacker). The first figure shows the line of incision. The second figure shows freeing of the urethra and formation of glandular tunnel. The third figure shows urethra brought up through the glandular tunnel and sutured. The disadvantage of this operation is that it causes shortening of the penis.

are equally as important as the type of operation used, and the success or failure in any case is determined as much by the former as the latter.

The most important rules to observe are:

1. Absolute asepsis during and after operation.

2. Avoidance of tension on sutures.

3. Maintenance of adequate circulation in all skin flaps used.

4. Allowance for contracture of all skin flaps.

5. The least complicated operation is most likely to be successful.

6. No hair-bearing skin should be used to construct the new urethra when avoidable.

Following operation, infection is the *bete noire* of all surgeons. If this is superficial it is usually controllable by wet antiseptic dressings. But most often it originates in the newly constructed urethra; and it is characterized by the appearance, at some point along the line of suture, of a small area of induration, reddening and tenderness, usually about 1 mm. in diameter. Within seventy-two hours a small area of suppuration develops, which, when opened, yields a few drops of pus, in which staphylococcus aureus or albus is usually found. The result of this is a fistula which is pin point in size.

The origin of such areas is not exactly clear but the probability is that skin used to construct the new urethra harbors a few cocci which subsequently infect the wound.

In the attempt to prevent this, one should inject, once or twice a day, some non-irritating and penetrating antiseptic into the new urethra. In doing this, care should be taken not to insert the instillation under pressure as there is danger of rupturing the line of suture. A medicine dropper one-half full is usually sufficient, and mercurochrome is an excellent drug, as it is non-irritatiing, disinfectant, and penetrates the tissues deeply.

Another precaution against infection is the fastening of the penis to the abdomen. This has the double advantage of preventing foldings and creasings of the skin along the line of suture and of giving free access to continuous wet dressings. This can be accomplished by a suture of silk or silver wire through the prepuce and abdominal skin. Often, however, this manoeuvre is painful and even unsuccessful, due to erections. This can be remedied by the insertion of separate stitches in the prepuce and abdominal skin and fastening between them an elastic band. Thus when the erection occurs the band stretches, and when the penis become flaccid again it contracts but in all conditions, it holds the penis up in the desired position.

Another frequent cause of infection starting inside of the new urethra is the premature passage of urine through it, caused by stoppage of the perineal drainage tube—due to plugging or kinking. This is best obviated by a deep suture encircling the urethra, and placed between the perineal drainage tube and the site of the plastic. This suture should be tied

sufficiently tightly to completely occlude the urethra, but care should be taken that it be not tight enough to cut the urethra. If this should happen, not only would the object of the suture be defeated, but extravasation of urine and periurethral abscess might occur, and stricture result at this point. This suture should be left in place until the plastic is well healed, and the perineal tube removed.

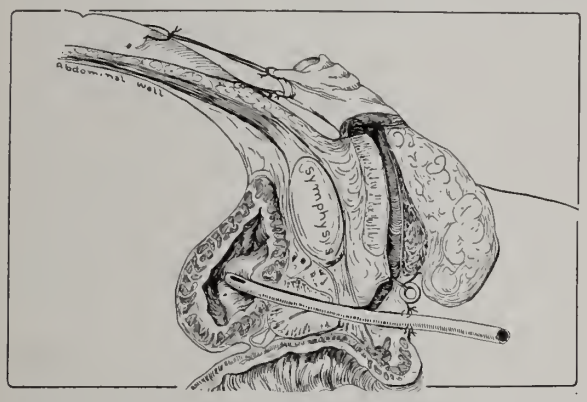


Figure VI.—Shows suture of penis to abdominal wall by two silver wire sutures in abdominal wall and two in prepuce between which is stretched an elastic band. Also shows occlusion of membranous urethra by suture surrounding it. This is to prevent passage of urine through anterior urethra. Also shows tube inserted into the bladder through external urethrotomy wound and sutured by two interrupted double medium silk sutures.

The avoidance of tension in the suture of all flaps must be scrupulous. If this is ignored there are several factors which will contribute to the failure of the operation. The first of these is the edema which follows within forty-eight hours after the plastic. This will cause the sutures to cut, and the plastic to disintegrate before healing has commenced. Tension also causes diminution in the blood supply of the flap because of the constriction of the vessels, thus predisposing to sloughing. And, finally, if there is tension, there is great probability that when cicatrization and contraction occur in the healing, the wound will be pulled open. These considerations make the avoidance of tension of paramount importance.

The maintenance of adequate blood supply to all flaps is self-evident, and, therefore, requires no explanation. If due diligence is not exercised in this, sloughing will occur with consequent loss of the plastic. One should always, therefore, leave a broad pedicle for the nourishment of flaps, and in the undermining of skin edges, one should be as conservative as possible and the dissection should be carried no further than is absolutely essential.

It is often surprising the degree of shrinking and contraction that occurs in a flap after it has been dissected free. This is particularly true in the skin of the penis and scrotum, and if the surgeon is not careful to allow for this, he is embarrassed to find that the flaps mobilized are insufficient for the purpose for which they are designed. To this end, it is wise to have the incisions at least one centimetre distant from the midline in the Duplay operation for construction of the penile urethra. Also, if allowance for contraction is not made, tension in the suture line results, as shown above, and there is imminent danger that the wound will break down.

The utilization of flaps of skin containing hair is to be avoided because urinary salts are prone to be deposited around them, with resulting stone formation. From this standpoint, it is inadvisable, therefore, to do any operation of this nature in which the skin of the scrotum, as in Bidder's operation, or where the skin of the pubes, as in Rosenberger's operation, has to be used.

The rationale for the attempt to correct hypospadias may be placed in two categories: (a) the anatomical restoration of the parts to normal, and (b) the functional benefits derived.

The anatomical anomalies to be corrected are the correction of chordee, with concomitant lengthening of the penis; restoration of the urethra, so that the meatus is situated in the glans; and the correction of the bifid scrotum, when present.

The functional benefits to be desired are dependent upon the anatomical corrections outlined above. They are micturition through the normal channel, and potency.

In any case of hypospadias, the operation indicated depends on the degree of deformity present. For this reason, the classification of hypospadias given by Duplay is helpful. He divided the condition into the following types:

A. Balanitic: The urethral meatus is in the coronal sulcus.

B. Penile: The orifice of the urethra is between the glans and the peno-scrotal junction.

C. Peno-scrotal: The hypospadias opening is at the peno-scrotal junction.

D. Perineo-scrotal: Here the meatus is in perineum or scrotum, the latter being of the bifid type.

Since 1908 there have been twenty-eight cases of attempted repair of hypospadias in the Brady Urological Institute. An analysis of these cases is naturally divided into several

headings, namely, the methods used to correct the chordee, restore the glandular and penile urethra, and the results of each as regards the permanence of the plastic.

As a preliminary to operation both for the correction of chordee and plastic repair, a perineal urethrotomy was done in twenty-four cases. In one case a catheter was placed in the bladder through the hypospadias opening, no attempt being made at the time of the plastic to anastomose the new urethra at the site of the hypospadias opening. In this case the plastic healed *per primum* except for a small fistula near the glans where the new urethra was sutured to it. Four months afterwards the new urethra was anastomosed at the hypospadias opening and a retention catheter inserted through the external meatus. The result was excellent, and the wound healed. However, it is obvious that perineal drainage will allow the entire plastic to be done at one sitting, and, also, the urethra can be occluded by a circular ligature anterior to the tube, making it impossible to soil the wound with urine. In the last seven years all cases have had perineal drainage, and there is little reason to doubt the advisability of this procedure. An added advantage of this is that if stricture should occur at the site of the plastic following operation, the perineal wound will sometimes act as a safety valve, and drain, thereby preventing retention of urine. This has occurred in two cases. After dilatation of the stricture the perineal wound healed readily.

In practically all cases of hypospadias there is downward curvature of the penis, with marked shortening. In the majority of cases this is due to absence of the corpus spongiosum, plus the formation of a fibrous band on the under surface of the penis, although there is evidence that contracture of the corpora cavernosa occurs in some instances. It is, therefore, necessary to perform a preliminary operation on the penis to straighten and lengthen it. The procedure which has been uniformly successful is a transverse incision of the skin of the penis and Buck's fascia, with thorough dissection of all constricting fibrous tissue of the intercavernous septum. It is not often necessary to divide into the corpora cavernosa to attain the desired lengthening, and one should usually exercise precaution to prevent doing this because troublesome hemorrhage occasionally results. The wound is closed longitudinally according to the Heineke-Mikulicz principle, and the penis sutured up to the skin of the abdomen. (Fig. 7).

Of the three cases showing the glandular type of hypospadias one was corrected by the Russell method, and one by the Duplay method. Both of these operations were entirely successful and a satisfactory glandular urethra obtained. The third case was a small boy, aged six, whose urethral orifice lay in the coronal sulcus. This orifice was pin point in size and would scarcely admit a silver probe and he voided a very small stream with slight straining. It was believed that he was too young to attempt a plastic repair and that the only immediate indication was to enlarge the urethral orifice. Therefore, a small knife was inserted through this opening and an incision made on the dorsal aspect of the urethra. In this fashion the orifice was enlarged to such

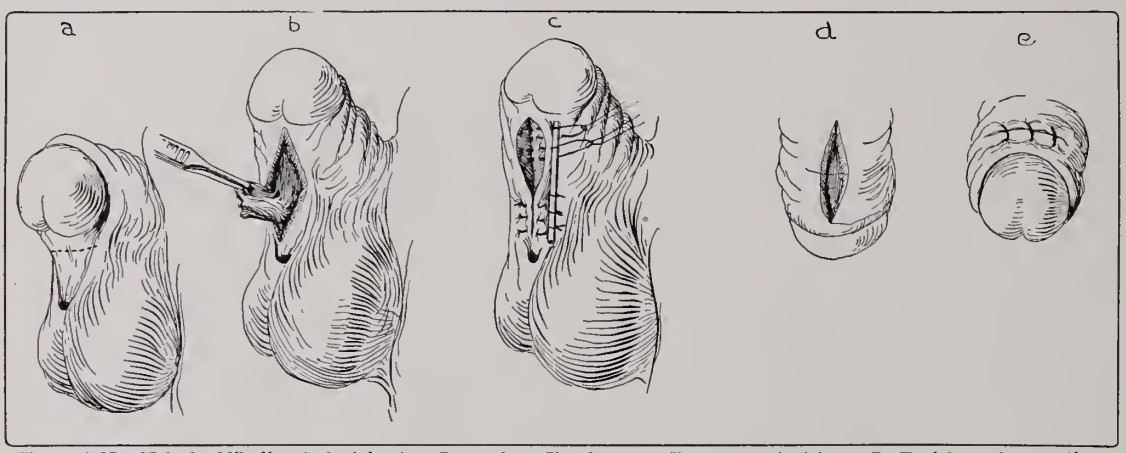


Figure VII.—Heineke-Mikulicz Principle for Correcting Chordee. A. Transverse incision. B. Excision of scar tissue in intercavernous septum. C. Closure longitudinally. D. and E. Shortening of dorsal surface of penis according to Heineke-Mikulicz's method which is necessary in some cases. Incision longitudinally, closure transversely.

a degree that a 22 French sound could be readily admitted, and the opening of the urethra was not made to occupy a position on the shaft of the penis, posterior to that point at which it was formerly located. This procedure therefore allows one to enlarge the urethral orifice without exaggerating the hypospadias.

For repair of the glandular urethra in connection with more serious grades than the simple glandular type, the following methods have been used: In two cases, no attempt was made to have a glandular urethra, an opening in the coronal sulcus sufficing.

In three of the earlier cases the prepucial flap method was used. On all of these the tube "took" nicely, and there was no sloughing, but a fistula resulted at the point of anastomosis of the prepucial tube and the new urethra, which it was necessary to close later. In one case glandular and penile urethra were constructed with a Tiersch graft. This healed well, and no fistula occurred in the glandular urethra. In one case a tube was made with a prepucial skin graft. This also gave an excellent result. No fistula or sloughing occurred.

In one case skin flaps were turned down from the abdominal wall, after the method of Rosenberger (Figure VIII).

Figure VIII.—Rosenberger Operation for Formation of Glandular Urethra. Shows flaps of skin raised from abdomen and sutured to form a tube which is inserted through the glands.

In this case the flap healed well, but a fistula resulted at the point of anastomosis of this tube to the new urethra.

Russell's operation (Figure IX) was performed in seven cases.

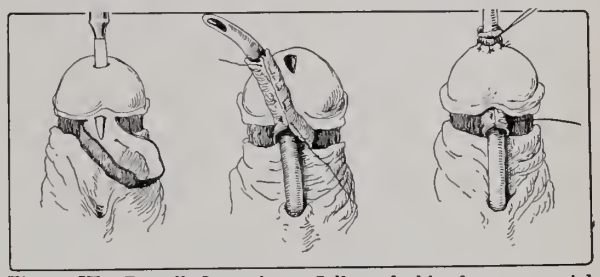


Figure IX.—Russell Operation. Collar of skin from prepucial hood is brought over the glans and sutured to make a tube and inserted upward through a tunnel made in the glans. This operation is often used in conjunction with the Duplay plastic for the formation of penile urethra.

In two cases healing was perfect. There was one fistula in one case, two fistulae in one case, three fistulae in one case and in two cases the plastic was unsuccessful because the lumen did not remain patent.

In ten cases the method of Duplay (Figure II) for the glandular urethra was used. In six of these cases healing was *per primum*, and the urethra remained open. In two cases the wound broke down due to infection. The origin of this in one case was the stoppage of the perineal tube with passage of infected urine through the new urethra; in the second case, the cause of infection was not determined. In two cases healing was such that the tube was not formed. This is caused by the edges of the inner tube healing to the outer edges of skin, so that no urethral tube is formed, and the glans returns to the same condition as before operation.

At first glance it would seem that the operations, such as those of Russell and Rosenberger, in which a tube is made from prepucial and abdominal skin flaps, have been more successful than the Duplay operations. However, in those operations, while the glandular portion has healed in practically all cases, the anastomosis of these tubes with the newly made penile urethra has been complicated by a fistula at the point of junction in every case, requiring closure.

It seems, therefore, that approximately the same result will be obtained by all of these methods, and that they are all very satisfactory for the formation of the glandular urethra. The Duplay principle is the least complicated and, since it gives excellent results, it has been used in the last six cases.

Survey of the different types of hypospadias which have come to operation shows that the peno-scrotal and mid-scrotal types together have occurred eighteen times in twenty-eight cases. The penile type in five cases; penile fistula, excepting post-operative fistulae, twice; and the glandular type in three cases. In the two cases of penile fistula, both were closed by skin flaps made from the sides of the fistula according to the Duplay principle. Both of these cases healed except small pin point fistulae at the site of the previous congenital fistula. These post-operative fistulae have been pin-point in size, and are easily closed.

The penile type of hypospadias has been corrected in five cases, four by the Duplay method, and one by turning up a flap from the scrotum. In two cases the result has been satisfactory in that the plastic healed, although one had one small pin-point fistula and one had two small openings at the site of the original hypospadias opening. One case voided around the perineal drainage tube three days after operation, the urethra anteriorly not having been occluded by a circular suture. A peri-urethral abscess developed, causing the plastic to disintegrate. The fourth case did not heal because too much tension was placed on the line of sutures, the skin not being sufficiently redundant to allow the flaps to be sutured without tension.

In eighteen cases of complete hypospadias, a flap of scrotal skin was turned up to form the new urethra in one case and a tube graft of skin was used in two cases. In three cases the operation advocated by Tiersch for epispadias was used, and in twelve cases the Duplay principle was employed.

In the case in which the flap was turned up from the scrotum, a Duplay plastic on the glans and a Heineke-Mikulicz for lengthening the penis was first done. Nine months later the repair of the urethra was carried out. The operation was as shown in the accompanying sketch (Figure X).

The result in this case was that the plastic healed well, but two small fistulae developed, one at the peno-scrotal junction, and one at the junction of the scrotal flap and glandular urethra.

In the two cases in which skin tube grafts were sutured over a catheter and inserted through a subcutaneous tunnel between the glandular meatus and the hypospadias opening, the results were also good. In one case an attempt was made to anastomose the skin tube to the hypospadias opening at the time of the plastic: in the second case it was left unat-

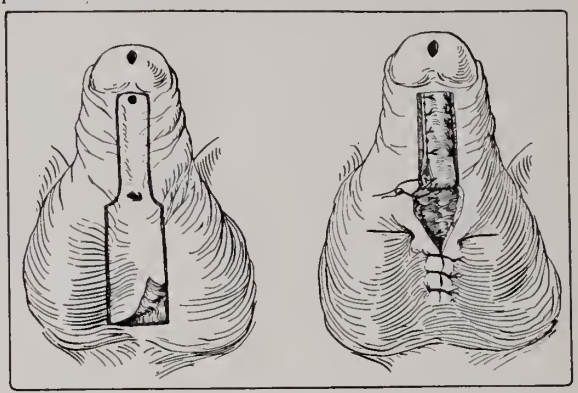


Figure X.—Shows method of raising scrotal flap for formation of penile urethra. Suture of new urethra with interrupted Lembert suture.

tached and the anastomosis performed nine months later. In both cases the grafts healed well, and, of course, no fistula developed in the penile urethra, but in both cases small fistulae developed at the point of anastomosis of the skin, tube and hypospadias opening. One of these cases yielded to dilatations with sounds and when last seen, five years after operation, a 24 F. sound could be passed from the meatus to the bladder. No fistulae were present. The second case has not been seen since his discharge from the hospital.

In three cases in which the Tiersch method (Figure I) was used there was healing of the plastic throughout except in one case three small fistulae resulted, one at the site of the peno-glandular anastomosis, one at the mid-penile portion of the urethra, and one at the peno-scrotal junction. In the second case, one fistula occurred at the peno-scrotal junction, which was present on discharge. The patient was instructed to return to have this closed, but he never did. In the last case the healing was *per primum* except one fistula at peno-scrotal junction. When seen two months after discharge no fistula was present, and he voided without difficulty. Fourteen months after operation a stricture resulted at the peno-scrotal junction. This caused the perineal wound to break open, but it closed immediately after the stricture was dilated.

The last twelve cases operated upon by the Duplay method have been separated from the above three cases in this analysis in order to determine whether any advantage is attained by the slightly more complicated method of Tiersch, in which the line of sutures are not

in apposition, and all sutures are tied outside.

An analysis of these cases shows that none of them healed completely, and, on the other hand, none broke down completely. In ten cases the healing was complete except for the formation of small fistulae. In four of these cases one fistula resulted; in three instances at the peno-scrotal junction, and in one at the retroglandular portion. In four cases two fistulae occurred. In all of these, one fistula was at the peno-scrotal junction and one at the mid-penile portion of the urethra. Three fistulae occurred in two cases, one of which was immediately behind the glans, one in the mid-penile portion of the urethra, and one at the peno-scrotal junction. In one case one-half of the plastic broke down.

Difficulty in making the perineal urethrotomy wound close has been encountered only twice. In both of these cases, stricture at some point of the plastic had occurred, the dilatation of which had affected the closure of the perineal fistula.

still had complete cure, with no fistula, and all of the urine was being voided through the new urethra. In two cases the result is not known. In two cases the success was partial. These cases had two or more fistulae, and closure of one or two has been successful. One of these cases is still under observation and will have the last fistula closed in the future.

The final summary of results obtained can be seen in the following table:

The inferences that can be drawn from the above analysis are practically limited to consideration of the cases done by the Duplay method, because other methods have been tried in so few cases that the results attained do not lend themselves to deductions.

The seventeen Duplay operations, however, show some instructive points. We know that any type of hypospadias is remediable if attacked with patience. Even the simplest cases usually require several operations before the defect is remedied and all fistulae closed, and often in the severe types it is necessary to

RESULTS OF OPERATION IN 28 CASES OF HYPOSPADIAS.

Type of Hypospadias	Glandular	Penile	Penile Fistula	Peno-Scrotol & Mid-Scrotal
Number of cases	3	5	2	18
Complete cure in 1 operation	3	0	0	0
1 Post-operative fistula		1	2	Duplay 4, Tiersch 1, Mayo 1, Rosenberger 1, Skin tube graft 2.
2 Post-operative fistulae		1		Duplay 6.
3 Post-operative fistulae				Duplay 1, Tierach 1.
Complete disintegration		2		1 (One-half broke down).
Result unknown				Duplay 1.

ULTIMATE RESULT.

Complete cure		1		Skin tube graft 1, Tiersch 2, Duplay 6.
1 Fistula	2	1		Skin tube graft 1, Duplay 4.
2 Fistulae				
3 Fistulae				
Failure of plastic		2		Duplay 1—due to erections.
Patient lost		1		Rosenberger 1, Duplay 2.
Death				Duplay 1, followed by influenza and bronchopneumonia.

So much for the immediate result of operation. The true criterion, however, is the ultimate result, and, although fistulae are prone to occur, the operation is justified even if these could not be closed at a later date, because they are, in the vast majority of cases, pin-point in size and only a few drops of urine escape. However, in nine cases in which closure was attempted, complete success was obtained in seven cases, and when last seen these patients

operate four or five times before all fistulae are closed. Therefore, one should not be discouraged if a perfect result is not obtained immediately. This has not occurred a single time in the above cases, but it will be seen that in twenty-five per cent (seven cases) a complete cure was effected before discharge; twenty-one per cent (six cases) had only one small fistula when discharged, thus making forty-six per cent practically cured. Ten per cent (3 cases)

have been lost, but these were discharged with only one small fistula, and the probability is that they have since closed. Therefore, a complete cure can be expected in from sixty to seventy per cent of all cases if patience is exerted, both on the part of the individual and by the surgeon. Great care must be taken to abide by the fundamental rules of plastic surgery on the part of the surgeon. If this is done, any of the above operations may be expected to give good results, but if these principles are ignored, no amount of ingenuity in the operating room can hope to bring success.

I am deeply indebted to Dr. Hugh H. Young for his permission to use these cases for this study. Many of them were from his private practice and all of them were on his service at the Brady Urological Clinic.

312 *Medical Arts Building.*

Discussion.

Dr. J. Shelton Horsley, *Richmond*: Dr. Bidgood has gone into the subject quite thoroughly and has given an excellent paper. I have had several cases of hypospadias in the last few years and I find that the type of operation in which the flap is taken chiefly from one side of the groove where the new urethra should be is very satisfactory. In this manner the flap can still be left partly attached to the groove and turned over so that the suture line is posterior, or at least in a posterior lateral position, and not directly under the median line. This is an added protection against breaking down. In addition, the end of the flap may be extended around the prepuce to the dorsum of the penis, if it is dissected in different stages and not all at one time. This principle of training the blood supply by operations at different stages insures the vitality of the flap and is a very important principle in plastic operation. In this manner the flap can be made long enough to reach fully to the tip of the glans penis and so will avoid the embarrassing leaks that often occur at the margin of the corona on the under surface.

SOME ANATOMICAL CHARACTERS OF THE MONGOLIAN IMBECILE.*

By R. BENNETT BEAN, M. D., University, Va.
Laboratory of Anatomy, University of Virginia.

The feeble-minded white child who resembles the Mongolian adult, and resembles even more the Malay adult, has been of considerable interest for about 100 years. This interest was centered around the ethnic relationship after the work of Chambers, "Vestiges of the Natural History of Creation" in 1844, and the elder Langdon-Down, "Observations on an Ethnic Classification of Idiots" in 1866; and it was brought out recently by a little book of Crookshank, "The Mongol in our Midst." Many others have studied the Mongolian imbecile. Hunter measured thirty-six and Davenport examined many more. In Davenport's recent work on the "Influence of Endocrines on Heredity," he brings out clearly some of the diagnostic traits in Mongoloids through an antropometric analysis.

It was my good fortune to examine about 100 of these "unfinished children," as they are called by Shuttleworth, while measuring the children at the Training School in Vineland, New Jersey, during the past summer. Measurements were made and descriptions recorded, with the addition of X-rays of the cranial sutures from three directions, and X-rays of the bones of the extremities. The type of ears, nose, face, head and body form was determined from their morphology. The statistical study is not yet complete, but enough has been done to justify a preliminary resume.

Characters.—Their chief characteristics are small stature, great relative sitting height, short arms and legs, broad and short hands and feet, single transverse hand-lines, short thumbs and short in-curved little fingers, the middle phalanx shorter than the terminal, prehensile great toes, small ratio of lower to upper arm length, small span and chest girth, high omphalic index, markedly broad and short head which is globular and sometimes flattened behind, involuted ears with adherent lobules and overturned upper helix, nose of the Hypomorph type, Mongoloid eyes, laxity of muscles, over-flexible joints, presence of the metopic suture, wide-open sutures with fontanelles, small epiphyses which remain ununited late, simple gyri and sulci of the cerebrum with small cerebellum and brain stem, rough, dry skin, scrotal tongue, defective retina and impaired vision. Many other characters could be enumerated but these are the most important.

Discussion.—The condition of true Mongolism is not so much abnormal development as incomplete metamorphosis. The Mongolian imbecile is the true Hypomorph of the Whites, and thus represents relatively the same type as the Negrillo and Negrito for the Blacks, and certain Malay, Mongolian and other peoples for the Yellow-Browns. I had never seen a true Hypomorph among the Whites until I first saw a Mongolian imbecile, and the discovery was a surprise. The cretin and the achondroplastic dwarf have some measurements similar to those of the Mongolian, but they

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

are not Hypomorphs, although they seem to be nearly related to them. All Mongolian feeble-minded children are not alike, and they vary from those who show all the typical traits to those who have only one or two of the characters, or who have the characters to only a slight extent. Cretins and achondroplastic dwarfs sometimes look Mongoloid.

Very few Mongolian children are idiots, and a considerable proportion attain the mental age of three or four years or even older, and some Mongoloids pass as normal, especially among women. The large part are imbecile, or near imbecile, therefore Mongolian imbecile is a better term than Mongolian idiot.

The tissues of the body in Mongolian imbeciles do not complete their metamorphosis, and even the cells seem to be unfinished or imperfect. Not one of the systems, bone, muscle, brain, skin, and others, have a natural function. The epiphyses of the bones are small and unite late if at all, and the joints are over flexible. The wide-open sutures of the skull, with fontanelles, and frequently the persistence of the metopic suture in the frontal bone, with the small brain and its simple gyri and sulci, and undeveloped cerebellum and brain stem, in conjunction with the simplemindedness denote incompleteness of development. The retina is incomplete, with impaired vision; the tongue is fissured radially from the midline; the lips are cracked and the eyelids inflamed. These are but a few of the many characters that could be cited in support of the statement that the condition is one of incomplete metamorphosis.

Causes.—Crookshank derives the condition of Mongolism from the orangs through the Mongols who early invaded Europe and left their impress upon the people which has been handed down since that time. He thus carries out to some extent the exploded theories of Klaatsch who derived the different races from different lines of anthropoid apes, although his theory has been modified by his followers. The work of Crookshank follows that of Chambers and the elder Langdon-Down, as well as many others who would derive the Mongolian imbecile among Whites from a previous mixture of Mongols and Europeans.

Mongolian imbeciles are found frequently to be the children of Mongoloid parents, the children of tubercular parents, or the first of normal parents, or the last of a large family, all the others being normal. The correlation has not been calculated for any of these conditions on a sufficiently large number, however.

Recently the endocrine glands have been brought in as the cause. This is natural today when our ignorance of the endocrines makes them a popular cover for other ignorances and negligences. A low grade lymphatic development, poor thyroid secretion, and deficient secretions of other glands have all been claimed as the cause. Davenport concludes that the chromosomes are the determiners of development, first by altering the quality and activity of the particular secretions, "under conditions imposed by environment, and then, as it were, turn over to the 'gland,' for better or worse, the functions that control many of the later developmental processes."

This all seems to mean that nobody knows the cause of Mongolism and anybody's guess is as good as another's. Pluriglandular deficit seems to fit it as well as anything else, and with reason, because all the tissues being deficient, the endocrines would also be deficient. The condition must start in the embryo or fetus because fetal and embryonic conditions may be retained. The persistence of the metopic suture, patent foramen ovale, hairy face and body, and defective pigmentation are but a few of the features retained.

I am inclined to agree with Dr. Robert Hutchison, of London, that mental deficiency arises fortuitously, and that each generation would continue to produce its crop of such children. Alcoholic conceptions, syphilitic heredity, and degenerate ancestry produce their effects, but we need more detailed and numerous studies before the question will have a basis of fact for settlement.

Nature has a way of producing extremes as well as intermediate conditions, and through this variability many situations may be suited. The Mongolian imbecile may come into its own sometime in the same way as the Negrillo and Malay by adaptation.

References.

Chambers, R. Vestiges of the Natural History of Creation, 1844. (Morley's Universal Library, 1887).

Crookshank, F. G. The Mongol in Our Midst—A Study of Man and His Three Faces. London: Keegan Paul, Trench, Trubner and Co. New York: E. P. Dutton and Co., 1924, 128 pages.

Davenport, C. B. Influence of Endocrines on Heredity. Proceed. 48th Annual Session of the Amer. Assn. for Study of Feeble-minded. 1924.

Langdon-Down, J. Observations on an Ethnic Classification of Idiots. Clinical Lectures and Reports: London Hospital, 1866, III, pp. 259-262.
Shuttelworth, G. E., and Potts, W. A. Mentally Deficient Children. London, 1923.
Vogt, H. Der Mogolismus. Zeitschrift f. d. Erforsch, v. Behandl. d. jugend—Schwachsinns i., 445-448. Jena., 1907.
Bean, R. B. The Racial Anatomy of the Philippine Islanders. Lippincott, 1909.

THE ROENTGEN RAYS IN UROLOGY.*

By JAMES W. HUNTER, Jr., M. A., M. D., Norfolk, Virginia.
Roentgenologist to St. Vincent's Hospital.

In the modern conception of clinical medicine every clinical symptom has a demonstrable pathological cause. It is exactly like the clock. If there be some error in its mechanism, we shall have an imperfect time-piece; and conversely, if we have imperfect time, we shall find some imperfection in the mechanism. There are no physiological pains except those of labor. And so, given a clinical case, we shall, if sufficient time and energy be expended, find a demonstrable pathological lesion, though often this is only to be found at autopsy and sometimes only by the most exacting microscopical technique.

Especially is this true of renal colic. Here we have a chain of symptoms of a distinct and definite nature, generally the most exquisite pain radiating from the lumbar region, often downward and forward into the anterior abdomen and even into the genitals. In many of the text books you will find the positive assertion that pain in the male subject will extend into the head of the penis; but from an examination of possibly two thousand cases (over half of them being males), I may assure you that pain in the head of the penis is generally not the result of a primary renal colic. This condition was formerly supposed to be due to the passage of a calculus through the ureter. Its sharp sides cut the mucosa as it descended. But, though this is often the case, we must abandon such a conception and recognize a more logical cause. In short, it is the stretching of the capsule surrounding the kidney by the damming back of urine that causes the trouble. And this may result from one of many causes.

Any congestion of the parenchyma causing a stretching of the renal capsule will cause a violent nephritic colic. In the pre-Volstead days I have seen this as a result of the ingestion of beer. The patient, a physician, was in agony many hours. No calculus was ever found or passed and a return to normal living with an abstinence from liquor soon made a cure. I also recall a case of interstitial nephritis that I twice examined for renal calculus. Even haematuria resulted. Yet upon operation no calculus was found and a decapsulation relieved. Similarly, we may have the old familiar tubercular kidney. If the organ still functions and there is no method of drainage, we may expect, and do have, intense suffering. Upon the other hand, if there be no pressure, even though a large calculus exists, no pain results and often these cases go unrecognized or are vaguely diagnosed as cystitis.

A damming back from below will also cause an attack of nephritic colic. Indeed, it is to this class that the great majority of cases belong. Ureteral kinks or stenosis, hydronephrosis or floating kidney, kidneys, as it were, that so far deviate from their normal position as entirely to obliterate the lumen of the ureter, may be and are productive of the greatest misery. Of this condition I have seen many cases; with the aid of the cystoscopist and the injection of an opaque material, I have been able to make many diagnoses. I remember one case in my early work. A young lady suffered with severe pains of an indefinite nature, which a distinguished surgeon in another city had declared to be of an ovarian origin. Yet upon operation no lesion was found in the ovary and a kinked and stenosed ureter gave the clue to the diagnosis. But right here let me sound a note of warning. Do not inject the kidney with too much force. The average pelvis will only hold from 12 to 15 c.c. of fluid. You may inject by means of the syringe, or you may use the gravity method. Personally, I prefer the syringe. Inject until the patient complains of a moderate pain in his kidney region. Then radiograph him. Then remove the fluid with the injection syringe. We formerly used a solution of some salt of silver. First we used argyrol, only to abandon it. Then we tried collargol. Eisenwrath made some studies and found that it was absorbed by the blood and distributed. There was an ever present danger of infarction. We abandoned this also. Next we tried a solution of thorium, but we found only that solution made by a certain firm of value. Of late, the bromide or iodide salts of soda are proving eminently satisfactory. They are used in a solution of from 20 to 25 per cent. Possi-

*Read by invitation before the Staff of the U. S. Naval Hospital, Norfolk, Va., October 29, 1924.

bly, however, the iodide salt is slightly less irritating.

As we have said above, any obstacle to the free drainage of the urine from the kidney, as a calculus in the pelvis of the organ, a kink of the ureter, or a stoppage from below, will result in a typical attack of nephritic colic. Consequently, we must first assure ourselves whether or not a calculus exists. We shall examine the entire urological system; we shall note particularly the size, shape and position of the kidneys. By far the most common cause is the small ureteral calculus. But we must not overlook the calculus so commonly found in the kidney. If the calculus is small and lies in the pelvis of the kidney, it is most probable that its simple removal with the repair of the pelvis of the kidney will restore the patient promptly to health. But even then the re-formation of the calculus is to be entertained. Likewise, we must remember that a neglected calculus in the pelvis of the kidney will often grow to alarming proportions. It will involve the parenchyma of the kidney. This will break down and suppurate. I have seen many cases of this kind. The referring surgeon and I have urged immediate operation. The family physician and patient have demurred. Death has resulted. Again, the operation has been delayed with a resulting septicemia and the loss of the kidney. Or, even again, an abscess has occurred with the formation of a persistent sinus in the back. Such a case I recently saw. An injection of bismuth paste gave the clue. The sinus extended into the kidney, which was full of calculi. Fortunately, the left kidney was intact and a nephrectomy cured the patient.

We often see some very puzzling cases. The largest calculus that I have ever found was in a mill operative from a small town in Eastern Carolina. He complained of a vague pain of an especial bearing down nature. I was asked to examine him on general principles. I found a calculus somewhat larger than the average hen's egg. The right kidney was entirely gone. Another case was that of a prominent grocer. This man had complained of night sweats. His lungs had often been examined; even in the absence of physical signs, fever or loss of weight, tuberculosis was suspected. He went the usual round of doctors. He suffered no pain. On account of a trace of albumin in his urine I was asked to examine him. I found a curious case of a kidney filled with calculi of a typical dumb-bell and mushroom shape. I attended the operation, a nephrectomy. No pus or breaking down of the parenchyma was found, though the amount of kidney substance yet remaining was exceedingly small. Another case suffered with typical symptoms which were so pronounced that, even in the face of negative roentgenological evidence, he was operated upon. He got no relief. A shadow of the gall-bladder, however, had been noted on the plate. A second operation, a cholecystectomy, relieved the patient.

I might quote interesting cases almost without end. A review of over two thousand cases would furnish much food for thought. But I would urge upon you the details of a differential diagnosis. Especially do I refer to the differential diagnosis between nephritic colic and a pathological gall-bladder. Almost any symptom of clinical gastro-enterology may suggest a cause. Unfortunately, only a small percentage of biliary calculi can be shown on the roentgen plate. But, following the work of George and with a technique developed independently, I have been able in some three hundred cases to demonstrate a pathological gall-bladder. These diagnoses have been proved at operation. It is upon the principle that every gall-bladder, which throws a shadow on the roentgen plate, is a pathological one, though not necessarily a surgical one. Recently Graham by his intravenous injection of a solution of tetrabromophenolphthalein has been able to show the gall-bladder in more detail. In his work a negative shadow is to be interpreted as due to on obstruction in the hepatic or common duct. So we shall examine both the urological system and the gall-bladder. If the urine itself is negative and no pathology can be obtained of the kidneys or ureter roentgenologically, we must look to the gall-bladder. Here the shadow of the organ upon the roentgen plate will establish the diagnosis.

Nor shall we forget that a great number of cases complain of pain at or near McBurney's point. A differential diagnosis between ureteral colic and appendicitis must be made. I have seen many examples of mistaken diagnosis. And, while I do not care to be dogmatic, I think that the diagnosis may easily be made as follows: If the kidneys and ureters are roentgenologically negative and if in the male the prostate can be eliminated, we are probably dealing with a pathological appendix. We shall prepare the patient for the

urological examination. If this is negative, we shall use the opaque enema and determine very definitely whether there exists any filling defect in the caecum or terminal ileum. We may diagnose adhesions and occasionally a tuberculous colon or malignancy. Rarely will the appendix itself be visualized. Or, failing in this, if the case be not too sick, we may give the opaque meal (I prefer barium and buttermilk), and observe the appendicular region at the sixth, twenty-fourth and twenty-eighth hour period. I am frank to tell you that my own work upon this line has been extensive; but I fail to agree with many of my confreres that the fluoroscopic examination of the appendix is of much value and I feel that the palpating spoon, introduced some ten years or more ago, is an instrument worthless, dangerous and to be discarded.

To the question of nephrolithiasis and uretero-lithiasis we may add that of the diagnosis of calculus of the bladder. This is, of course, comparatively easy. It may be made either by the cystoscopist or by the roentgenologist. Perhaps, however, it is best made first by the roentgenologist. While the catheterization of the female bladder is comparatively easy and likewise the introduction of the cystoscope, the same procedure on the male is often attended by extreme difficulty and sometimes with risk. But even here the exact position of the bladder must be recognized. Some years ago, in a neighboring city, a diagnosis of a calculus in the bladder was made from a plate showing two small phleboliths above the border of the pubes. Operation was performed, but no calculus found. Disgusted, the patient consulted me. The roentgenogram showed two small phleboliths. I had no difficulty in recognizing a case of specific urethritis and referred the patient to a competent urologist. The process had involved the seminal vesicles, prostate and neck of the bladder. Under proper treatment the patient recovered. Yet the surgeon could not understand why no calculus had been obtained through the suprapubic incision, when two were shown on the plate. He wrote me. The explanation was simple. The plates had been made by a female technician and interpreted by a medical man unfamiliar with the normal roentgen anatomy of the bladder.

From the bladder to the outside world we have the urethra. In the female subject this is quite short and presents but little difficulty to the passage of a very small calculus. In the male urethra, however, often attended as it is by strictures and being somewhat long, an occasional calculus is impacted. Of this I have seen but one case. The calculus was impacted at about the middle of the tube and lay just under the lower border of the pubes.

To the question of lithiasis we must add that more interesting one of the demonstrable lesions of the kidney and ureter. By the injection of a solution of an opaque salt, as we have mentioned above, through the ureteral catheter we are able to visualize the pelvis of the kidney and the entire course of the ureter. We are, accordingly, able to make a diagnosis of hydronephrosis, pyonephrosis, tuberculous pyelitis and many of the various anomalies, such as "horse-shoe" kidney, or double kidney, as well as ureteral kinks, stenosis or double ureter. Here again we must depend upon an intimate knowledge of the anatomy of the organ. We must realize that the kidneys normally lie upon either side of the spinal column, being bean-shaped and about four and a half inches in length and that they are very closely associated at the internal or pelvic aspect with the second lumbar vertebra. The one on the right is surrounded by the liver and is, accordingly, hard to visualize; the one on the left is somewhat higher, but is free. The kidney is also divided into a cortical and medullary portion and from the latter are projected several pyramids, the pyramids of Malpighi, while between them lie an almost equal number of calices. These latter are the terminal ends of the three infundibula, the superior, middle and inferior, which in turn unite to form the pelvis of the kidney. This is continued downward by the ureter. It lies almost directly external to the outer aspect of the transverse process of the lumbar vertebrae and descends almost straight until it reaches the upper border or crest of the ilium, where, still descending, it passes first outward and then inward, to enter the bladder at a point almost exactly between the spine of the ischium and the tuberosity of the sacrum.

It is by the size and position of the kidney pelvis that we are able to make a diagnosis. We shall find a distinct dilatation of, and distortion of, the infundibula and calices in the case of a hydronephrosis; a budding in the parenchyma, as of a bunch of grapes, in a pyonephrosis; a distinct blurring or breaking down in a tubercular pyelitis, and a displacement in the movable kidney. We are able also

to recognize any kinks, strictures or dilatation of the ureter. I have often seen a considerable relief from the pains of a hydronephrotic kidney as the result of a simple dilatation of a ureteral stricture together with a renewal of the tone of the kidney. Usually these strictures will occur at or near the uretero-vesical valve or at the uretero-pelvic junction.

Some cases of hydroureter are most interesting. I remember distinctly one case of enlarged and dilated ureter due to the upward and downward passage of a cigar-shaped ureteral calculus. In my student days, as a summer man at the Harvard Medical School, I found at autopsy a case of double kidney and double ureter. Both of the kidney segments were small and united by a band of connective tissue. The pelves were entirely distinct and from them there descended two distinct ureters to the bladder. Lately I have seen roentgenologically two similar cases in my service at St. Vincent's Hospital.

To the injection of the kidney and ureter we must add that of the bladder. We may use, as before, an opaque fluid or we may inflate the organ simply by air. In either case we may look for a contracted or expanded bladder, a diverticulum, a tumor, or a prostatic incursion. This gives us valuable information. Of the prostate itself much may be said, though an attempt to visualize it as such upon the roentgen plate has in my own work not always been uniformly successful. Often numerous prostatic calculi present themselves. Often it exerts a pressure upon the lower ureter, in turn causing an attack of renal colic. Of the latter I have seen many cases. Usually these are in young subjects, the victims of a specific urethritis, though the condition often occurs in older men. The attempt has also been made to inject the seminal vesicles. But the work has not seemed to be of any great value, nor to compensate for the discomfort of the patient or labor of the urologist, though a solution of argyrol is often injected for its therapeutic value. But invariably such solutions are too weak to cast a shadow. And so the procedure has been abandoned. However, what today is considered common sense is tomorrow foolishness and *vice versa*. We can only wait.

Thus, it will be seen that the roentgen diagnosis is the most recent, as well as the most valuable, contribution to the study of urology. The sense of sight is the most perfect of our senses. Seeing is believing. The roentgenologist and urologist will work together. They will neglect no means toward a diagnosis. The history, physical findings, cystoscopic examination, the chemical and microscopical examination of the segregated urines and the phenolsulphophthalein test will each play its part toward the correct interpretation of the roentgenogram. Very narrow, indeed, is he who can see nothing beyond his own specialty. After all it is the patient that we should consider. As doctors of medicine it becomes our duty to study human ailments; as physicians we should endeavor to relieve them. To the immortal discoverer of the roentgen rays we owe an eternal gratitude. It was his privilege to minister to the human race. It was his privilege to bring to those "who sit in darkness and in the shadow of death" a new and greater light. Gathered unto his fathers he now rests upon the bosom of his native soil. "After life's fitful fever he sleeps well."

606 *Medical Arts Building.*

RADICAL SURGERY OF THE MAXILLARY SINUS—STUDY OF TWENTY-SIX POST-OPERATIVE CASES WITH SPECIAL REFERENCE TO DENTAL INJURY.*

By E. T. GATEWOOD, M. D., F. A. C. S., Richmond, Va.

The word "radical" is generally used to differentiate the simple drainage operation through the nose from the oral method, which is in reality not radical, but only a thorough conservative procedure that is indicated in the removal of neoplasms, cysts, pussy granulations or bone necrosis of the sinus.

Caldwell, of New York, in 1893, and Luc, in France, in 1897, described this operation independently of each other. Denker later extended this operation by removing the crista pyriformis which is the junction of the anterio-nasal walls, with the idea of not overlooking diseased tissue in this angle, which usually defeats the purpose of the operation. When a radical operation is indicated, the general contour of the sinus should be the guide in selecting the Caldwell-Luc or Denker method, as the removal of the crista pyriformis is a necessity in order to thoroughly clean out the ex-

*Read at the meeting of the Baltimore Section of the Surgical Research Society, Richmond, Va., April 29, 1924.

ternal compartment, if the sinus is flattened in shape and the nasal wall concaved inward.

Criticism has been made that patients subjected to the Caldwell-Luc or Denker operation complain either of constant numbness, sensation of elongated teeth, persistent pain, or abscess formation with loss of teeth. It is for this reason we have been particularly interested in the post-operative study of these cases.

Permanent injury to the teeth may be brought about, no doubt, by imperfect operative technique in one of three ways: (1) trauma to the peri-dental membrane; (2) removing bone too close to apex of tooth; (3) disregard for the nerve and blood supply.

1. The peri-dental membrane lines the alveolar socket and functions as a bumper protection to the tooth, and when this structure is abused by unnecessary jars in the use of dull chisels or sudden blows in entering the cavity, swelling and edema follow with infection. This is usually what happens when the post-operative patient complains of an elongated sensation of the tooth. In reality the tooth is actually lengthened by the soft tissue changes, and can be demonstrated by proximating the teeth. To avoid such accidents, use should be made of a sharp chisel, or, better still, the motor driven bur.

2. Removing bone too close to apex of tooth: Good judgment and caution are always necessary either when the antral cavity dips low or the tooth presents itself prominently towards the antral floor; the latter is frequently true of the canine. If the smooth sinus floor over-lying the tooth root is broken, opening up cancellous structure, infection is likely to follow with subsequent apical abscess, and a post-operative reinfection of the sinus. This may be avoided by using a dull subperiosteal separater rather than making use of the curette which is so universally advocated. It has been our custom not to use the curette in this particular region at all, and as little as possible in other regions as it is more conducive to hemorrhage, blind work, and trauma.

3. Preservation of the dental nerve and blood supply: The anterior dental nerve courses a canal or a grooved process on the inner surface of the anterior antral wall, and supplies the incisors and canine teeth. The middle dental nerve traverses the anterior wall in a like manner and supplies the bicuspids; the posterior superior dental nerve passes through the posterior wall and emerges along the floor in a direction to supply the three molars, all being derived from the second division of the fifth. While it is impossible to perform either a Denker or Caldwell-Luc operation without severing one or more of these branches, it is readily understood that rich anastomosis takes place between these branches along the upper anterior alveolar processes and the dense plexus of nerves that lie in the cancellous structure beneath the antral floor supplying dendritis to the apical tooth structure. In addition, the infra-orbital nerve supplies branches to the anterior wall, anastomosing with branches from the naso-palatine along the inferior surface. It is sufficient to mention the blood supply is analogous to the nerves, with the exception that the anastomosis in the antral floor is much richer in character.

The dental nerve and blood supply should not be permanently damaged with such adequate development as is shown in this locality. We believe those cases that have the misfortune to be followed by devitalization and apical abscesses can be attributed to injury rendered the terminal apical structure. Such accidents may be enormously lessened if block anesthesia is used, which lends itself to a clean field, slow and painstaking technique.

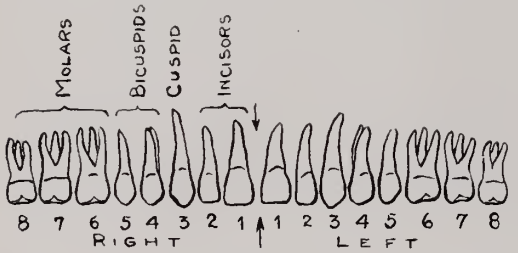
Impairment of sensation in one or more teeth following operation usually regains itself, though the time is variable. A tooth may be desensitized temporarily, or permanently, without being vitally damaged and judged a pulpless or devitalized structure. For example, the Gasserian operation will desensitize the teeth rather than devitalize or damage the nutritional supply. There is no more reason why interference with the sensory nerve supply to a tooth should devitalize it, than a paralyzed limb should slough from a spinal cord tumor. Clinical and X-ray studies of our cases do not show sufficient post-operative injury to the vascular supply to be followed by devitalization and abscess formation.

Antral disease is frequently secondary to dental infection; therefore, careful examinations were made of the teeth before operation, and removal was done when indicated.

While we know current reactions and X-ray films of the teeth may be subject to many deductions, it is the most accurate means we have at the present time to determine the sensory and structual condition.

Operation	Electrical	X-Ray	Notation
1. G. H., June 20, 1923. L. Caldwell-Luc.	March 25, 1924. 1 2 3 4 5 6 7 8 + + + + + + + +	Negative	Reactions and sensation normal.
2. G. M. H., May 1, 1923. L. Caldwell-Luc.	March 25, 1924. 1 2 3 4 5 6 7 8 - - + + m m + m	Negative	Nos. 1 and 2 did not respond to current.
3. J. W. W., April 5, 1923. R. Caldwell-Luc.	May 29, 1923. 8 7 6 5 4 3 2 1 m + + + + + + -	Negative	No. 1 devitalized before operation.
4. H. S., April 25, 1923. R. Caldwell-Luc.	May 20, 1923. 8 7 6 5 4 3 2 1 + m c m m + c -	Negative	No. 1 devitalized before operation.
5. W. J. H., May 14, 1923. L. Denker	May 24, 1923. 1 2 3 4 5 6 7 8 + m + + + + + +	Negative	Numbness present. Respond to current.
6. T. M. F., May 12, 1922. R. Caldwell-Luc.	Nov. 3, 1922. 8 7 6 5 4 3 2 1 - + + + + + + +	No. 8 root amputated before operation.	Reactions and sensation normal.
7. H. G. M., March 23, 1923. R. Denker.	April 17, 1923. 8 7 6 5 4 3 2 1 + m + - + + + +		No sensory impairment except No. 5.
8. C. T., April 16, 1922. R. Caldwell-Luc.	April 20, 1923. 8 7 6 5 4 3 2 1 m m + - - m + +	Negative	4-5 Desensitized, apparently vital.
9. A. D. R., April 10, 1923. R. Denker.	May 7, 1923. 8 7 6 5 4 3 2 1 m + + + - - -		1–2–3–4 sensation not yet re-returned.
10. K. H. W., May 10, 1922. R. Caldwell-Luc.	March 6, 1923. 8 7 6 5 4 3 2 1 m m m m m - - -	Negative	1–2–3 Desensitized; apparently vital.
11. G. S., May 11, 1922. L. Caldwell-Luc.	March 24, 1923. 1 2 3 4 5 6 7 8 + + + + + m - +	Negative	No. 7 devitalized before operation.
12. G. S., April 29, 1922. R. Caldwell-Luc.	March 24, 1923. 8 7 6 5 4 3 2 1 + + + m m + + +	Negative	Reactions normal; no numbness.
13. M. F. B., April 16, 1923. R. Caldwell-Luc.	Sept. 2 , 1924. 8 7 6 5 4 3 2 1 + + + + + + + -	Negative	Incisor devitalized before operation.
14. M. W. M., June 6, 1922. L. Caldwell-Luc.	Feb. 10, 1924. 1 2 3 4 5 6 7 8 + + - - - - - -	Negative	Desensitized; apparently vital.
15. W. H. A., May 9, 1921. R. Caldwell-Luc.	Feb. 6, 1924. 8 7 6 5 4 3 2 1 - - m - m + + +	Negative	5–7–8 desensitized but vital.
16. A. V. L., June 5, 1923. R. Caldwell-Luc.	March 25, 1924. 8 7 6 5 4 3 2 1 + + + + + + + +	Negative	Reaction normal. Numbness in No. 1.
17. C. W. T., Oct. 11, 1923. L. Denker.	March 20, 1924. 1 2 3 4 5 6 7 8 + - + + - + + +	Negative	Sensation returned except 2 and 5.
18. C. U. M., July 17, 1923. L. Caldwell-Luc.	March 10, 1924. 1 2 3 4 5 6 7 8 + + + c - + + +	Abscess of 2nd bicuspid.	Reactions normal in others.

Operation	Electrical	X-Ray	Notation
19. M. H. D., Oct. 12, 1921. R. Caldwell-Luc.	April 1, 1924. 8 7 6 5 4 3 2 1 + + + + + + + +	Negative	Reactions and sensation normal.
20. C. L. H., March 30, 1921. L. Caldwell-Luc.	March 28, 1923. 1 2 3 4 5 6 7 8 + + + + + + + +	Negative	Reactions and sensation normal.
21. C. L. H., Nov. 18, 1922. R. Caldwell-Luc.	March 28, 1924. 8 7 6 5 4 3 2 1 m m + + + + - +	Negative	Desensitized lateral incisor.
22. A. S. P., Jan. 23, 1924. R. Caldwell-Luc.	March 22, 1924. 8 7 6 5 4 3 2 1 m m + c c + + +	Negative	Reactions normal. Some numbness.
23. C. W. H., May 10, 1923. L. Caldwell-Luc.	March 24, 1924. 1 2 3 4 5 6 7 8 + + + + m m + m	Negative	Incisor numbed. Reaction to current.
24. A. S. G., March 10, 1924. R. Denker.	March 20, 1924. 8 7 6 5 4 3 2 1 + + + + - - - -	Negative	1–2–3–4 show negative reactions.
25. O. O., Jan. 24, 1922. R. Caldwell-Luc.	March 24, 1924. 8 7 6 5 4 3 2 1 + + + m + + m m	Negative	Normal reactions and sensation.
26. O. O. H., Feb. 7, 1922. L. Caldwell-Luc.	March 24, 1924. 1 2 3 4 5 6 7 8 + + m + + m + +	Negative	Normal reactions and sensation.



Code:
† Sign indicates electrical response equal in degree of sensation to control or non-operated side.
— Sign indicates absence or impaired sensation as compared with control side.
c Indicates a crowned tooth.
m Indicates a missing tooth.

Comment.

Cases 1, 3, 4, 5, 6, 11, 12, 13, 16, 19, 20, 22, 23, 25, 26 gave good normal nerve reactions; that is, they responded to the least amount of current necessary to provoke a similar reaction from the opposite or control side. These reactions not only indicated a vital tooth, but sensory regeneration equal in degree to the opposite or non-operated side.

Cases 2, 7, 8, 10, 14, 15, 17 do not necessarily indicate desensitized teeth by the minus sign, but on the other hand a subnormal reaction as compared with the corresponding tooth on the non-operated side which is used as a control or standard of comparison. Many of the teeth indicating the minus sign could be placed on the positive or plus side if an additional degree of current was used, but, on the contrary, the least amount was utilized that was necessary to provoke a response first from the control or opposite teeth. Time no doubt will complete the normal degree of regeneration.

Cases 9 and 24 show inadequate time (2 to 4 weeks) for any degree of nerve regeneration.

Case 18 shows structual change in one tooth.

Twenty-five cases show normal X-ray films, indicating no post-operative structural damage.

While our series of cases are few, they are sufficient in number to prove the Denker or Caldwell-Luc operation is devoid of any permanent damage to the teeth when performed by one who is careful and experienced in technique.

Professional Building.

BLOCKING PUERPERAL SEPSIS.

By STEPHEN HARNSBERGER, M. D., Warrenton, Va.

Modern hospitals claim to be equipped with every preventive aid against the lying-in woman's infection. Hence I cannot imagine how it is possible in such conducted institutions for this sad happening to occur, unless it is that they withhold one item of care; the one item which I have kept in mind and never omit at either full term or premature cases. My views and procedure on all such occasions have been published, but it seems that most physicians are so set in their lecture and text-book knowledge of what to do at and after births that they are not inclined to *treat the patient in hand.* They simply do the bidding of their preceptors and text-books.

"Nothing can justly be despised that cannot be justly blamed: where there is no choice there can be no blame."—*South.*

Why this paper? some may ask. Simply in the interest of the mothers of our children. That, and nothing more.

Cleanliness and submission to the authoritative requirements enumerated and instilled into the minds and hearts of the new graduates and licensed practitioners, leaves no loophole to physicians for individual variation, thought, judgment, discretion or initiative. In fact, it makes the medical man an unconscious automatic machine. He is sworn to this hard and fast rule, and threatened with deterring trouble should he lack or add to this set effort in securing immunity from childbed infections? I put this question mark advisedly, for after many years of observation and maneuvering at the bedside of labor cases, without trained professional or nursing assistance, amidst the worst insanitary surroundings, I am caused to be impressed with the imperative need of every harnessed physician having a "head of his own," and trained to think, suggest, apply and act for himself on his own cognition, as the only qualified, dependable and responsible attendant at child births. Of course this is meant after he has had actual bedside practice for a reasonable period following his graduation and post-graduate training; then he should learn to adapt his efforts to the specific needs of his patient. When he reaches the limit of things taught, he should draw on his own reserve—the latent armamentarium lying dormant within his brain. The reserve is always there, and more or less responsive to enjoined desire or the urgent necessity of the moment. If he has the proper humanistic interest in the welfare of his patient, he will be able to meet the difficulty even in the seemingly hopeless cases; provided he will continue in faith—that is, make interest coincide with duty.

Present-day aseptic measures frequently make the application irksome, as well as displeasing and prohibitive to both patient and nurse, but that need not be taken into account if no other means, less irksome, prove as effective in the prevention of the infections under consideration. Present preventive measures also fall short of constant prevention or of the desired maximum of safety, nor can they come into universal use, being limited mostly to institutional work. What the obstetrician needs is something that can be used at every confinement, whether in the remote sections without trained nurses and those who have no physicians to care for and direct their labors; something the most ignorant and careless midwife or the "drop-in" help can administer; something that can do no harm, but on the contrary can be used to the *lasting* good of the patient and the comfort of fathers and other members of the family. That is what is needed and what state laws should require to be kept on hand and administered to every woman following full-term births and miscarriages. *Better health of mothers is the crying demand of the day.* House help each year grows scarcer and less efficient. The full burden of having children and then caring for them is solely on the mothers. There is no way of shunning it, so it is for physicians, especially the family physician, to earnestly and faithfully care for them at all times that their lives may in some manner be made to accord with humanistic demands. And keep in mind, dear doctor, that your mother wore petticoats. Let that be your guide and inspiration in caring for others. Since the autumn of 1877 it has been my study to make people well, and it is my firm belief at this late date that we should not omit caring for mothers in the way (or a better way if you know it) I have already put in print and will continue to recommend.

From what I can see, it is time for the world to revert to the safe, though blunt, "common sense" manner, rather than to follow the up-to-date, intricate and more costly laboratory method of locating trouble, to insure to the sick and injured their allotted span of life. Laboratory findings, I admit, have a place and

have taught us much of value, but they too often switch us to a wandering track! For instance, the blind acceptance of many of the profession of the heralded wonders done in curing pneumonia by injections of one thing and another is, especially in the great teaching centers, putting too many valuable citizens in the grip of an unending repose. Serums, vaccines, etc., yield a mortality of from thirty to fifty per cent, and in one recent instance in the city of Philadelphia, so the U. S. Public Health Records tell us, let every patient die, 135 cases with 135 deaths in one week. Had those patients been left to open air, plenty of drinking water, little food, lower limbs and body kept warm, with restful repose, they would have fared far better. The longer I live and the greater my observation and experience in handling the sick, the stronger is my faith in the recuperating powers of Nature, provided ill-judged interference ceases to meddle. The sole object of professional service is to assist Nature's weakened metabolic activity and not to try to force her to the point of metabasis. It is my opinion that our business is first to make our patients as comfortable as possible under the circumstances, and next to save life; and making and keeping them comfortable is by long odds the strongest contributing factor in maintaining the vitality, upon which restored health depends.

This paper was suggested by excerpts on puerperal fever from foreign publications in the *Journal of the American Medical Association*, September 20, 1924. Why? We were told years ago that asepsis would surely prevent puerperal infection, and we are told the same today. Yet we find the means and measures universally taught as the surest and only guard against this unfortunate happening are cleanliness from start to finish in caring for puerperal women. This may be the case and it may prove the fortunate outcome in many or a majority of naturally robust women, and a help in many of lesser physical make-up, but it should not be overlooked that the myasthenic (now on the increase) and others with some inactive organic asthenia, say of the procreative organs, cannot be safely left to the futile reclaiming effort of a prevailing local or other lowered physical condition and just cleanliness. Good blood repels infection so long as it is active, but we cannot always tell, even after the most careful tests, the degree of repelling force it carries. Therefore it is the part of wisdom, as well as a sacred obligation of the medical attendant, to anticipate and prevent a contingent which is so frequently followed by lasting harm, or the death of a mother, and a household forced unnecessarily into a state of chaos.

Never curette the parturient uterus. It borders on the criminal. Though it is never well to wait too long in clearing out the placenta and clots, when it has to be done, the hand is the least dangerous expedient. When done early, it is said to prevent possible thrombosis, partially, at least, secure the patient against infection, and protect her from the contingency of embolism. Personally I cannot say, since I have not met with either accident. The danger from manual extraction of the placenta is so slight, and the advantages of its removal so great, that the element of danger never enters my mind.

The invariably successful results following my obstetrical services, backed by the therapeutic measures strictly enforced for at least six weeks, and longer, when I can persuade the patient to continue it, have withstood infection, warded off uterine abnormalities, and will, I feel confident, do much in preventing cancer in later life. Why? Because the puerperal route is put into such a perfect condition of repair that no foci of injury are left to be continuously irritated, the supposed cause of the incident of cancer.

Notwithstanding the fact that I have had to attend labor cases with all manner of infections, I have never had puerperal fever to result from the gross negligence, or rather from the gross necessity, that was forced upon me. A potent preparation of fluid extract of purpurea claviceps is about as perfect as insurance against puerperal infection as the fact of never having had a baby. Get a reliable make, because in administering the drug in non-puerperal conditions, the boggy uterus, etc., I have had the potent makes do what I wanted done. I could not always get the preferred article and on other makes the patients would complain that "the last" medicine was not acting properly. I could not persuade them to feel otherwise, even when I insisted that it was the same as the preparation first prescribed in appearance, taste, color, odor, etc. As soon as I placed them on the make first given, they would invariably say, "We are doing nicely again—the drops are acting properly." Every obstetrical patient should be given a moderate

dose of fluid extract of purpurea claviceps as soon as the after-birth is removed and have it kept up in doses just large enough to give the woman slight abdominal inconvenience, or some slight drawing-up or gripping sensation in the womb, which never disturbs her comfort, and, in fact, adds to it. Relaxed tissues absorb, and contracted tissues repel infection. It's easy to block, just bar the door. My blocking and postural method have filled the requirements. The lying-in woman should always use the chamber, as the upright position drains the uterus and vagina of all waste. It is the only reliable cleansing procedure. Try this "blocking and postural" method—*save the mothers.*

Case.

Years ago, when I was remote from surgeons, a New York woman arrived in my neighborhood. I saw her an hour after her arrival and found her in labor. She told me her first pregnancy was cut short at five months in a New York hospital, as she could not give birth to a full-term baby. I asked why she deliberately came to a place where no help was at hand. She replied, "she wanted to come and she usually did as she pleased." There were no telephones in that day, and though I wired every town I could reach by telegraph, I could get no assistance. With the bad roads and no trains to any hospital point, it was up to me to do what I could. That one thing was to cut the fetus up and remove it in the piecemeal fashion. My only instruments consisted of a barlow knife and a pair of shoemaker's pincers. My wife aided in giving chloroform. It took four hours. The patient came out admirably—never showing rise of temperature.

Twelve months later, she came in the same condition. The baby was smaller and though labor was slow and rather severe, the infant lived. This case made three operated on with that highly prized barlow knife. It remains under key, but I pray not for further use in labors, as we are now blessed with good roads, telephones, telegraphs, the get-there Fords and doctors to waste. In neither case could forceps succeed and I feared to try opening the abdomen. (Parke, Davis and Co.'s Purpurea Claviceps prevented fever and made the repairs! It has always been successful).

Proceedings of Societies

The Southside Virginia Medical Association

Held its regular meeing in Petersburg, December 9, Dr. George H. Reese, of that city, presiding. A banquet was held at the Petersburg Country Club in the evening. The following officers were elected for 1925: President, Dr. H. M. Snead, South Hill; vice-presidents, Dr. R. H. Manson, McKenney; Dr. F. C. Rinker, Norfolk; Dr. Wright Clarkson, Petersburg; and Dr. J. A. Grizzard, Drewryville; secretary-treasurer, Dr. R. L. Raiford (re-elected), Sedley. It was decided to hold the next meeting in Norfolk in March, 1925.

The Richmond Academy of Medicine,

At its annual meeting held December 9, elected Dr. C. C. Coleman president, and Dr. Warren T. Vaughan and Dr. Arthur S. Brinkley vice-presidents. Dr. M. W. Peyser continues as secretary-treasurer.

At this meeting, the Academy amended its constitution by eliminating Hanover County from the territory of its membership, thus paving the way for granting a charter by the Medical Society of Virginia to the medical society of that county.

An invitation was extended to the Medical Society of Virginia to hold its 1925 meeting in Richmond, with the suggestion, however, that it should not be during the time of the State Fair on account of the housing difficulty.

The Danville Academy of Medicine

Met December 9, at the Golf Club. Dr. Richard W. Fowlkes, of Richmond, by invitation read a paper on "The Treatment of Acne Vulgaris."

Dr. E. H. Miller was elected president of the Academy for 1925; Dr. P. W. Miles, vice-president; Dr. J. A. Tyree, secretary-treasurer.

The Seaboard Medical Association of Virginia and North Carolina

Held its twenty-ninth annual meeting at Rocky Mount, N. C., December 2, 3 and 4, under the presidency of Dr. William E. Warren, of Williamston, N. C. The attendance was large, and the scientific program and social functions were most attractive and thoroughly enjoyed. Dr. R. L. Payne, Norfolk, Va., was elected president for the ensuing year. Vice-presidents are Dr. George A. Caton, New Bern, N. C., Dr. D. Lee Harrell, Suffolk, Va., Dr. M. I. Flemming, Rocky Mount, N. C., and Dr.

R. M. Cox, Portsmouth, Va. Dr. George A. Caton, New Bern, N. C. was re-elected treasurer, and Dr. Clarence Porter Jones, Newport News, Va., was re-elected secretary. The next meeting is to be held in Norfolk, Va., in December, 1925.

The Richmond Society of Ophthalmology and Oto-Laryngology

Held its regular meeting December 16, 1924, Dr. Karl Blackwell, presiding.

Election of officers for the ensuing year resulted as follows: Dr. Emory Hill, president; Dr. Emanuel U. Wallerstein, vice-president; Dr. F. H. Lee, secretary-treasurer.

The regular scientific program was dispensed with and the time was devoted to business and the report of cases.

Dr. E. T. Gatewood reported a case of fulminating mastoiditis with lateral sinus thrombosis, in which there was absence of aural discharge and of other symptoms indicative of an inflammatory process of the middle ear. Smear and culture showed the hemolytic streptococcus to be the responsible organism.

Dr. R. E. Mitchell reported a case of mastoiditis with operation. The sinus was uncovered and presented protective granulations; four days later the patient developed lateral sinus thrombosis. The internal jugular vein was resected, the sinus opened and the clot in the jugular bulb was removed. Bichloride of mercury was used intravenously with seeming efficacy.

Dr. J. A. White reported several interesting cases—two of cataract extraction, and one of glaucoma following iridectomy preliminary to cataract extraction. Full accounts of these will appear in a later issue of this journal.

W. L. Mason,
Secretary.

The Truth About Medicine

In addition to the articles enumerated in our letter of October 28th, the following have been accepted:

Hoffmann-LaRoche Chemical Works
- Secacornin
- Thigenol

Intarvin Co., Inc.
- Intarvin

Eli Lilly and Co.
- Ampules Ouabain, 0.0005 Gm. (1/128 grain)—Lilly
- Hypodermic Tablets Strophanthin 1/100 grain—Lilly
- Hypodermic Tablets Strophanthin 1/120 grain—Lilly
- Iletin (Insulin-Lilly) U-80

Merck and Co.
- Benzyl Succinate—Merck

Parke, Davis and Co.
- Ampoules Adrenalin Chloride Solution Rx 1, 1:10000, 1 Cc.
- Ampoules Adrenalin Chloride Solution Rx 2, 1:2600, 1 Cc.
- Ampoules Adrenalin Chloride Solution 1:1000, 1 Cc.

Sharp and Dohme
- Hypodermic Tablets Strophanthin (1/200 grain) S. and D.
- Ergotole
  - Ampules Ergot, 1 Cc.

E. R. Squibb and Sons
- Insulin—Squibb, 10 Units
- Insulin—Squibb, 20 Units

Swan-Myers Co.
- Sterile Ampoules Mercuric Potassium Iodide, 0.017 Gm., (¼ grain)—Swan-Myers

Synthetic Drug Co., Inc.
- Compressible Capsules Mercury Salicylate "Synthetic" 1 grain for Intramuscular Injection
- Compressible Capsules Mercury Salicylate "Synthetic" 1½ grains for Intramuscular Injection
- Compressible Capsules Mercury Salicylate "Synthetic" 2 grains for Intramuscular Injection

Winthrop Chemical Co.
- Novasurol
  - Novasurol Ampules

NEW AND NONOFFICIAL REMEDIES

Schick Test-Lederle (New and Nonofficial Remedies, 1924, p. 335).—A diphtheria immunity test, also marketed in packages of one vial containing diphtheria toxin sufficient for 50 tests; in packages of one vial containing diphtheria toxin sufficient for 100 tests. Lederle Antitoxin Laboratories, New York.

Antidysenteric Serum—P. D. and Co. (New and Nonofficial Remedies, 1924, p. 301).—An antidysenteric serum, also marketed in packages of one syringe containing 20 c.c. Parke, Davis and Co., Detroit.

Barbital—Merck.—A brand of barbital—N. N. R. (New and Nonofficial Remedies, 1924, p. 62). Merck and Co., New York.

Barbital Sodium—Merck.—A brand of barbital sodium—N. N. R. (New and Nonofficial Remedies, 1924, p. 63). Merck and Co., New York.

Carbon Tetrachloride—Merck Highest Purity "C. P."—A brand of carbon tetrachloride medicinal—N. N. R. (New and Nonofficial Remedies, 1924, p. 84). Merck and Co., New York.

Cargentos Ointment, 5 Per Cent.—An ointment composed of cargentos (formerly marketed as cargentos new process, New and Nonofficial Remedies, 1924, p. 343), 1 part; anhydrous woolfat 19 parts. The H. K. Mulford Co., Philadelphia.

Cargentos Capsules, 3 grains.—Capsules, each containing cargentos (formerly marketed as cargentos new process, (New and Nonofficial Remedies, 1924, p. 343), 3 grains. The H. K. Mulford Co., Philadelphia.

Diphtheria Toxin-Antitoxin Mixture New Formula (Park Banzhaf's, 0.1 L+ Dose).—A diphtheria toxin-antitoxin mixture (New and Nonofficial Remedies, 1924, p. 298), each c.c. of which constitutes a single dose, and contains 0.1 lethal dose of toxin properly neutralized with the necessary amount of diphtheria antitoxin; marketed in packages of three 1 c.c. vials representing one immunizing dose; in packages of thirty 1 c.c. vials representing ten treatments; also in packages of one 30 c.c. vial representing three treatments of three doses each. The H. K. Mulford

Co., Philadelphia. (Journal A. M. A., Nov. 1, 1924, p. 1431).

Nutrivoid flour.—A vegetable product composed chiefly of unassimilable carbohydrates (mannans). It contains fat, 0.92 per cent; protein, 4.31 per cent; nonutilizable carbohydrates, 85.37 per cent. Nutrivoid flour is used as a means of filling out restricted diets, as in the Allen treatment of diabetes. It is a nonnutritive food substance used to give bulk to foods, thus serving to satisfy hunger without furnishing nourishment. Nutrivoid Diabetic Flour Co., New York.

Insulin—Squibb.—A brand of insulin (New and Nonofficial Remedies, 1924, p. 149). It is supplied as insulin—Squibb 10 units (5 c.c. vials containing 10 units in each c.c.), and insulin—Squibb 20 units (5 c.c. vials containing 20 units in each c.c.) E. R. Squibb and Sons, New York. (Journal A. M. A., Nov. 8, 1924, p. 1509).

Lacto-Dextrin.—A mixture composed of lactose, 73 per cent; dextrin, 25 per cent, and desiccated lemon juice, 2 per cent. The administration of lacto-dextrin is proposed as a means of promoting the growth of the normally present aciduric organisms B. acidophilus and B. bifidus in the alimentary tract, so as to make them the predominating organisms. It is claimed that this increased growth of acidophile organisms prevents the undue development of putrefactive bacteria and their products. It is claimed that this change in the character of the intestinal flora brings about increased intestinal activity and that this in turn prevents or ameliorates certain conditions commonly ascribed to putrefactive products in the colon. Battle Creek Food Co., Battle Creek, Mich.

Pituitary Extract—Lilly (Obstetrical).—A slightly acid aqueous solution containing the water soluble principle or principles of the fresh posterior lobe of the pituitary body of cattle. It is tested for oxytocic action on the isolated uterus of the virgin guinea-pig against a standard solution prepared from defatted desiccated posterior lobe powder and adjusted so that its strength is equal to that of a 5 per cent solution of the fresh posterior lobe of the pituitary gland. For a discussion of the actions and uses, see general article, Pituitary Gland, New and Nonofficial Remedies, 1924, p. 225. Pituitary extract—Lilly (obstetrical) is marketed in ampules containing 0.5 c.c. and 1 c.c., respectively. Eli Lilly and Co., Indianapolis.

Pituitary Extract—Lilly (Surgical).—A slightly acid aqueous solution containing the water soluble principle or principles of the fresh posterior lobe of the pituitary body of cattle. It is tested for its pressor action on the blood pressure of mammals and for oxytocic action on the isolated uterus of the virgin guinea-pig against a standard solution prepared from defatted desiccated posterior lobe powder and adjusted so that its strength is equivalent to that of a 10 per cent solution of the fresh posterior portion of the pituitary gland. For a discussion of the actions and uses, see general article, Pituitary Gland, New and Nonofficial Remedies, 1924, p. 225. Pituitary extract—Lilly (surgical) is marketed in ampules containing 1 c.c. Eli Lilly and Co., Indianapolis.

Culture Bacillus Acidophilus—Medical Laboratories, Inc.—A broth culture of **Bacillus** acidophilus in bottles containing about 120 c.c. It contains from 250 to 500 million of viable organisms (**B. acidophilus**) per c.c. at the time of sale. For a discussion of the actions and uses, see Lactic Acid-Producing Organisms and Preparations (New and Nonofficial Remedies, 1924, p. 169). Medical Laboratories, Inc.. New York. (Journal A. M. A., Nov. 15, 1924, p. 1589).

Intarvin.—An artificial fat made from fatty acids having an odd number of carbon atoms. Intarvin is composed of the glyceryl esters of margaric acid admixed with small quantities of the glyceryl esters of pentadecylic, palmitic and stearic acids 82 per cent; liquid petrolatum, 12 per cent; water, 6 per cent. Intarvin is proposed for use in diabetes mellitus on the ground that fatty acids containing an odd number of carbon atoms do not yield ketone bodies on oxidation in the normal or diabetic organism, and that for this reason it may with advantage replace the natural fats in the diet. The evidence indicates that intarvin does not increase the production and may reduce the production of ketones in certain cases; that it has protein sparing-action; that sugar is formed from it in small amounts only; that it has little if any beneficial effect on carbohydrate metabolism in the human organism; that its unpalatable taste is a drawback to its use, and that it may prove useful in the treatment of diabetes in certain cases. Intarvin Co., Inc., Long Island City, N. Y.

Quinine Ethyl Carbonate—P. W. R.—A brand of quinine ethyl carbonate—N. N. R. (see New and Nonofficial Remedies, 1924, p. 267). Powers, Weightman-Rosengarten Co., Philadelphia. (Journal A. M. A,. Nov. 22, 1924 p. 1685).

Secacornin.—Ergotin-Roche.—A solution of the active principles of ergot in a menstruum consisting of distilled water, glycerin and 7.5 per cent of alcohol. One cubic centimeter secacornin corresponds to 4 Gm. ergot, U. S. P. The actions and uses of secacornin are the same as those of ergot. It may be given by intramuscular injection. Hoffman-LaRoche Chemical Works, New York. (Journal A. M. A., Nov. 29, 1924, p. 1769).

PROPAGANDA FOR REFORM

Aolan Not Accepted For N. N. R.—The Council on Pharmacy and Chemistry reports that Aolan is prepared from milk freed from fat and is claimed to be a germ-free and toxin-free solution of lactalbumen, manufactured in Germany for the H. A. Metz Laboratories, Inc. The use of Aolan is recommended by intramuscular and intravenous injection in a large number of conditions. The Council found Aolan inadmissible to New and Nonofficial Remedies because it is marketed under unwarranted therapeutic claims. When the Metz Laboratories was informed of the Council's decision, the firm sent a detailed reply. After considering this reply, the Council decided that the rejection of Aolan should stand. The Metz Laboratories, Inc., does not hold itself responsible for the many and varied claims made for nonspecific protein therapy and the uses of Aolan in connection therewith which have appeared in print. Although the claims advanced by the American agent are relatively moderate, they are still unacceptable because they are unsupported by controlled clinical evidence from reputable observers. (Journal A. M. A., Nov. 8, 1924, p. 1526).

Pollantin Not Accepted For N. N. R.—Pollantin Liquid, Pollantin Ointment and Pollantin Powder are hay-fever "remedies," manufactured in Germany and marketed in this country by Fritzsche Bros., Inc., New York. According to the advertising, it is prepared from the serum of horses inoculated with "the pollens of various species of ragweed and golden-rod, and of graminae, such as rye, Indian corn, meadow foxtail, timothy grass, etc.," and is suitable for all forms of hay-fever. An enormous amount of work has been published controverting the claimed value of this serum. The principle on which Pollantin was founded has been found to be unsound, and there is no acceptable evidence to show that hay-fever is due to a toxin in pollen. The Council on Pharmacy and Chemistry found Pollantin Liquid, Pollantin Ointment and Pollantin Powder inad-

missible to New and Nonofficial Remedies because the claims for their value are unfounded and they appear to be unscientific and useless articles. (Journal A. M. A., Nov. 8, 1924, p. 1526).

Cleero.—This is labeled "the vanishing shampoo." It is another piece of cosmetic quackery put out by the Van Ess Laboratories, Chicago. Cleero is sold with the claim that the use of soap on the hair is dangerous and that "the free alkali present in most soaps" makes them still worse. The A. M. A. Chemical Laboratory analyzed Cleero and found it to be essentially a perfumed watery solution of soap with free alkali and glycerin. (Journal A. M. A., Nov. 15, 1924, p. 1607).

Hexamethylenamin.—Like the earlier attempts to "disinfect" the alimentary tract through ingestion of selective germicidal substances, the efforts to render the entire organism free from microorganism by a similar therapeutic procedure have not been attended with conspicuous success. Hexamethylenamin was early hailed to promising success in these endeavors. It has been recommended as an antiseptic agent for virtually all the body fluids. It was soon demonstrated, however, that bacterial growth is not prevented by it, even in proportions much higher than could be found anywhere in the body. This important evidence rendered it improbable that the administration of hexamethylenamin can exert marked antiseptic effects in the tissues. In an acid solution hexamethylenamin disintegrates into ammonia and formaldehyd, and to the latter substance are doubtless due the beneficial therapeutic results experienced in the treatment of urinary infection. A recent study demonstrates that the alleged beneficial effects of hexamethylenamin systemically in various infectious diseases cannot be explained by the presence of adequate liberation of formaldehyd in the circulation and tissues. The drug itself is not antiseptic; and the hope of securing systemic antisepsis through its use seems forlorn. Its one field of action seems to be in pathologic conditions in the urinary tract, and it is necessary that the urine be markedly acid. (Journal A. M. A., Nov. 23, 1924, p. 1688).

San-Gri-Na.—"San-Gri-Na is the formula of a French physician. It has been used in Europe by millionaries, actresses and hundreds of fat men and women because it is simple, easy, pleasant and harmless." Thus runs part of the advertising claptrap for San-Gri-Na, one of the recent entrants to the "obesity cure" field. The preparation is put out by the "Scientific Research Laboratories," New York City. The newspaper advertisements convey to the obese public the idea that it is unnecessary to exercise or diet, the only desideratum being the purchase of San-Gri-Na. When the stuff has been bought, however, the purchaser finds that in addition to San-Gri-Na she should take the juice of one lemon in a glass of warm water every morning, chew her food very thoroughly, eat only two or three light meals a day, sleep not more than six or seven hours, do a reasonable amount of walking, take no liquid with meals, avoid starches, fat and candy. From the analysis of San-Gri-Na in the A. M. A. Chemical Laboratory, it appears that the product consists of tablets containing sulphur and cream of tartar with a small quantity of phenolphthalein as their essential constituents. (Journal A. M. A., Nov. 22, 1924, p. 1703).

Pixalbol Not Accepted For N. N. R.—The Council on Pharmacy and Chemistry reports that Pixalbol is the name under which E. Bilhuber, Inc., New York, markets a colorless tar preparation which is manufactured by Knoll and Co., Ludwigshafen a. Rh. Germany. It is claimed to be identical with the preparaton formerly sold in the United States by Knoll and Co. as Anthrasol. The trademark on the word "Anthrasol" was seized by the United States government during the late war and sold to the Chemical Foundation, Inc. The product may be marketed in the United States under the name Anthrasol only with the consent of the holders of the rights to the trademark. In consideration of the abuses which are connected with the application of proprietary names to medicinal articles, the Council recognizes such names only when this is in the interest of the public welfare. Since the product in question was introduced under the name Antrasol, the Council decided that it was not in the interest of medicine that further proprietary names be applied to it. The Council informed E. Bilhuber, Inc., that consideration will be given the product if it is marketed as Anthrasol under license from the Chemical Foundation, Inc., or under a satisfactory descriptive nonexclusive name. (Journal A. M. A., Nov. 22, 1924, p. 1704).

Peptone Solution for Hypodermatic Use (Armour) Not Accepted For N. N. R.—Peptone solution for hypodermatic use is marketed by Armour and Company in ampules containing 1 c.c. of a 5 per cent solution of Armour's Special Beef Peptone. The product is advertised "as an aid in immunization, hypodermatically and orally" and the advertising refers in the main to the firm's peptone solution for hypodermatic injection, although its intravenous use is also dealt with. Emphasis is given to the use of peptone in the treatment of asthma. Reference is also made to its use in such conditions as hay-fever, skin affections associated with asthma, cyclic gastro-intestinal attacks, urticaria, coryza of the spasmodic type, migraine angioneurotic edema and pruritus. Intravenous medication—some wise and some foolish—has greatly increased in recent years, and it is not suprising that foreign proteins should be used in the hope of accomplishing something in conditions such as those for which the Armour preparation is advertised. It is a serious question whether the best interests of medicine are served by the recognition of methods, the real value of which is not established, the limitations and dangers of which are not understood, and the general employment of which contributes to the profits of those who sell the product, rather than to a knowledge of the actual value of the product. For this reason, the Council on Pharmacy and Chemistry voted not to accept Peptone Solution for Hypodermatic Use (Armour) because it is an unstandardized mixture, and because its acceptance would be taken as an endorsement of the use of peptone for intravenous use, presumably for all the conditions in which its employment has been recorded. The Council wishes it understood that, in not accepting this preparation, it has no intention of opposing the legitimate use of protein preparations by those who wish to study nonspecific protein therapy. The Council reports that Armour and Company appeared willing to undertake the standardization of the protein, but that the rejection of the preparation was affirmed because its value has not been established. (Journal A. M. A., Nov. 29, 1924, p. 1786).

Whichever way the wind doth blow,
Some heart is glad to have it so;
So blow it east, or blow it west;
The way it blows, that way is best.

—*Selected.*

Virginia Medical Monthly

FOUNDED BY LANDON B. EDWARDS, M. D., APRIL, 1874.
OWNED BY THE MEDICAL SOCIETY OF VIRGINIA.
PUBLISHED BY THE PUBLISHING COMMITTEE.

A. G. BROWN, Jr., M. D., Chairman, Richmond, Va.
B. R. TUCKER, M. D., Richmond, Va.
P. W. HOWLE, M. D., Richmond, Va.
E. L. KENDIG, M. D., Victoria, Va.
A. L. GRAY, M. D., Richmond, Va.

ALEX. G. BROWN, Jr., M. D., Editor.

AGNES V. EDWARDS,
Business Manager and Secretary-Treasurer.

All correspondence regarding editorial matters, articles, advertisements, subscription rates, etc., should be addressed to the Journal.

All advertisements are received subject to the approval of the Council on Pharmacy and Chemistry of the American Medical Association.

Subscription Price: $2.00 per annum in advance.
Single Copies 20c.

Vol. 51. JANUARY, 1925 No. 10

Editorial

John Nottingham Upshur, M. D.

Born at Norfolk, Virginia, February 14th, 1848; Died at Richmond, Virginia, December 10th, 1924.

John N. Upshur, descendant of a long American ancestry, completed his academic education at the Virginia Military Institute; he acquired his medical education and received his medical degree from the Medical College of Virginia, in 1868; he practiced his profession in Richmond from the time of his graduation to the time of his last illness, a practice covering a period of more than a half century. Dr. Upshur was a Charter Member of the Medical Society of Virginia (1870); he was President of the Medical Society of Virginia in 1902-3. He was a member of the Richmond Academy of Medicine and Surgery, and its Preisdent for a term. In the Medical College of Virginia he occupied various chairs in its faculty: Professor of Materia Medica and Therapeutics from 1884 to 1894; Professor of Practice of Medicine from 1894 to 1899; Emeritus Professor of Practice of Medicine to the time of his death.

Dr. Upshur participated in and exerted a great influence in various medical and professional organizations, being an active member of city, state and national societites. He contributed many clinical papers to these meetings through the years and entered into discussion of medical subjects presented with readiness and effect. His lively interest in and enthusiasm for clinical medicine enabled him to be ever ready and able to defend or champion an opinion, a cause, or a conclusion.

For fifty-six years Dr. Upshur pursued the duties of his professional calling here in the city of Richmond. During that long period he held a foremost rank as a medical practitioner, serving with great skill a long roll of patients. For years he enjoyed a large consulting practice. His ability and skill in diagnosis and therapy were recognized by the profession. Frequent calls in consultation were made upon him by his colleagues in order to obtain the benefit of his wide experience in clinical medicine.

Dr. Upshur was, likewise, an eminent teacher for years in the faculty of the Medical College of Virginia. He will be remembered by many active practitioners of today because of his vivid, lucid, impressive and didactic lectures and clinical discourses in medicine between the years 1884 and 1899. As a teacher he deeply impressed the student. Enthusiastic and earnest, he inspired the student with interest and engaged his intellectual co-operation. Of clear voice and fluent tongue, his didactic discussions of favorite medical themes made lasting impression. His career as a teacher was no less distinguished than that as a practitioner and clinician. His memory will ever be fresh in the minds of his former students at the Medical College of Virginia.

In his professional life the highest ethical characteristics were found. Only in the realm of high professional dealing he was always found. He was ever the champion and the exemplar of high ethical standards, both in private and public professional relations. No man was able to question his integrity and his lofty purpose in professional manners. Likewise in scientific procedure, he did his best. A product of the medical education of a rather distant era, he kept well in hand the sane and safe medical and surgical advances of the day. He sometimes appeared to express some disapproval when advanced ideas were not to his mind worthy. In late days he was bold to express disapproval of trends and drifts that appeared to lead to evils in practice. If reactionary, it was not for want of scientific interest, but for fear of the untoward and harmful effects of the newer claims. In no way did he obstruct progress, but rather was quick to entertain and practice accepted scientific discoveries.

Dr. Upshur's American ancestry reached

with a well-defined lineal course through American colonial times. His forefathers were foremost Americans. His ancestry was distinctly English. His immigrant ancestor came to America in 1642. He settled in Accomack County, Virginia. This immigrant Upshur came from Essex, England, representing a line of high type Englishman traceable for centuries in English history.

In the personal bearing of our distinguished and lamented Dr. Upshur, the breeding and culture of centuries might easily be seen. His upstanding, clear-cut, straight-forward, gentlemanly presence bespoke the generations of honorable American ancestry. His personal characteristics, furthermore, gave expression to the same American influence of the best sort. Born of Virginia's best people, he was a splendid example of Virginian modern manhood. Pure in his life, he lived for generations in Richmond as an honored example of a Christian gentleman. He was held in high regard not only for his professional knowledge, but also for his unfailing devotion to the highest principles of life and service. He was recognized by all who knew him to be not only a follower of high moral standards, but also a valiant defender of righteousness in public and private life. This characteristic of the man stood out pre-eminently. He was ever ready to defend and champion the right as he saw it. His defense of his cause was virile and telling. There was never any uncertainty as to where Dr. John N. Upshur stood on moral questions. He was uniformly found in ranks of contenders for the best ethical standards. He was definitely clear in his mental processes. He was ever ready to champion with avidity the causes of spiritual and religious life. He was an ardent, consistent and faithful churchman. For more than fifty years, he held high and responsible positions in the church. His professional work and his church were coordinate. The same characteristic personal traits were found in his religious life as were true of him in professional life. He was true; he was faithful. He lived constantly a Christian gentleman through the years.

Some of his predecessors in the profession have held as high place in point of reputation and success, but none have excelled our lamanted nestor in medicine in Richmond in that finer and higher spiritual life which represents the best type of manhood found in the race. His life was a well spent one. He served with fidelity for more than a half century a vast number of sick and distressed people. He gave them every service cheerfully, faithfully and with skill. He did not spare himself. He sacrificed his comfort and health in his professional work. He did not falter or fear, but worked laboriously for the sick. He taught his art to others. He was a successful teacher. He was strong and influential in medical societies and organizations. He wrote on medical subjects.

He served his country in war and all but gave his life to the Southern cause. He was patriotic and loyal to city, state and country. He was a high bred and high minded man of pure private and public life. He was the friend of the poor and was ever ready to serve them. He was a strong, faithful and consistent churchman. He was a defender of the faith in professional and religious life, and, for himself, with Tennyson, might have said:

Sunset and evening star,
And one clear call for me!
And may there be no moaning of the bar,
When I put out to sea.

But such a tide as moving seems asleep,
Too full for sound and foam,
When that which drew from out the boundless deep
Turns again home.

Twilight and evening bell,
And after that the dark!
And may there be no sadness of farewell,
When I embark.

For tho' from out our bourne of Time and Place
The flood may bear me far,
I hope to see my Pilot face to face
When I have crossed the bar.

Encephalitis

On March 8, 1919, there was announced in the press a report of certain obscure cases which the public health officials of Evanston, Illinois, had pronounced epidemic lethargic encephalitis. The newspapers began immediately to call these cases by the very misleading term of "sleeping sickness." Dr. Emmion Williams appointed a commission to look into the condition in Virginia and on May the 17th, Dr. Tucker, the chairman, reported eleven cases with two autopsies in the *Journal of the American Medical Association*. Since this time medical literature has been flooded with reports of encephalitis cases.

It has been debated whether or not the condition was a sequela of influenza, and although some do not accept this theory and others have thought they had observed an especial organ-

ism, still the consensus of opinion is that it follows influenza or is an expression of influenza *per se*. Past epidemics under various names have been observed following epidemics of la grippe. Many autopsies have been performed, the chief findings of which have been cerebral congestion with minute hemorrhages scattered throughout the brain, cobweb adhesions at the base of the brain and, in the long standing cases, dilated ventricles. The chief clinical findings have been various marked, slight or transient cranial nerve disturbances (including double ptosis), tremors, muscular immobility and at first a slight febrile stage. The course has been very irregular in time, some cases have recovered in a few to many weeks, some die while many go into, or are followed by, complications or sequelae, such as insanity, hemiplegia, spastic states and conditions resembling paralysis agitans.

Since encephalitis has become known in 1919 it has been more or less constantly present. Several points in regard to the disease need emphasis. In the first place these patients are rarely asleep or drowsy, as is commonly supposed, but they have this appearance because of double ptosis, weakened facial muscles and infrequent voluntary change of body position. Again, there is a tendency, at least, toward moderate increased intracranial pressure, and occasional lumbar punctures may prevent the damage that might be done by permanently distended ventricles. In the paralysis agitans form the lesion is in the lenticular nuclei and the pill rolling tremor of true Parkinson's disease is usually replaced by a more or less constant general tremor. Lastly, autogenous serum, inactivated and given intraspinally, appears to be a very valuable therapeutic measure.

B. R T.

News Notes

The Distribution of Physicians in the United States

Is discussed in a report by Lewis Mayers and L. V. Harrison, issued by General Education Board, of New York City. Answers to a large number of questionnaires sent out in representative areas served as the basis of their report. It is conclusively proven that the percentage of physicians in rural districts and small towns was much lower in 1923 than in 1906. The recent graduate's avoidance of rural locations is ascribed largely to the lessened opportunities for making a livelihood in these sections and to his inability to be in touch with the facilities which he has been taught to use when in college and hospital.

In a few places community action in subsidizing a physician has worked well. It is generally conceded, also, that a physician is more likely to have the respect of a community if his services are sought than if he comes to it as a prospector seeking a living. Plans adopted by several communities are cited. A physician accepting a position in a community, on a full or part-time payment basis, should see that adequate arrangement is made for him to take a vacation every year or two for recreation and for the purpose of visiting medical centers and coming in contact with current developments.

The Commission on Cancer,

Of the Medical Society of the State of Pennsylvania, after making a thorough investigation of the cancer problem in that State, recommended that they would co-operate as a Commission and as individuals with the American Society for the Control of Cancer in its "Cancer Week" educational work. The Commission made a survey of the cancer situation in Pennsylvania in 1923 along the same lines and with the same form of questionnaire as in 1910, at which time public education with regard to cancer was undertaken in that State. A comparison of the figures proves most conclusively that CANCER EDUCATION DOES PAY. Inquiries of many patients applying early for treatment brought the response that it was due to hearing a lecture on cancer.

In completing its report, this Commission, of which Dr. J. M. Wainwright, of Scranton, is chairman, urged that a cancer division be added to Pennsylvania State Health Department Clinics, to eliminate the pernicious influence of physicians who do not refer patients for operation in time, and to reach patients in meager circumstances who delay seeing the doctor because of the cost of a proper investigation.

The Southern Surgical Association,

At is annual meeting in Charleston, S. C., December 9-11, 1924, decided to hold its next meeting in Louisville, Ky., in December, 1925, and elected Dr. Irvin Abell, Louisville, Ky., president and Drs. Stephen H. Watts, Uni-

versity, Va., and Archibald J. Buist, Charleston, S. C., vice-presidents. Dr. Hubert A. Royster, Raleigh, N. C., and Dr. Urban Maes, New Orleans, La., continue as secretary and treasurer, respectively.

The Association of Surgeons of the Seaboard Air Line Railway

Held its annual meeting at Sarasota, Fla., early in December, with a good attendance. Dr. Samuel E. Harman, Columbia, S. C., was elected president, and Dr. J. W. Palmer, Ailey, Ga., was re-elected secretary-treasurer. Dr. W. T. Graham, Richmond, Va., was elected third vice-president. Dr. Jack Halton, Sarasota, Fla., was elected a member of the executive committee for a six-year term. The date and place of meeting for 1925 was left for the executive committee to decide.

Married.

Dr. John Mason Bishop, of Roanoke, Va., and Miss Mary Converse Gilman, of Richmond, December 6.

Dr. John J. Neal and Miss Lillie May Voss, both of Danville, Va., October 11, 1924.

Dr. Allen Barry Sloan, of Charlotte, N. C., and Miss Charlotte Green Francis, Richmond, December 25. Dr. Sloan is a member of the class of '24, Medical College of Virginia. On their return from a Southern trip, they will be at home at 1025 Floyd Avenue, Richmond.

Dr. James D. Clements, of Gloucester, Va., and Miss Alice Teackle Wallis Moore, of Carlisle, Pa., December 20.

Richard Cannon Eley, of Suffolk, Va., a member of the fourth year medical class of the University of Virginia, and Miss Caroline B. Flynn, of Jamaica, L. I., December 27.

Dr. Samuel Palmer Hileman, Catawba Sanatorium, Va., and Miss Ruth Meredith Yerby, Richmond, Va., January 3. Dr. Hileman is an alumnus of the Medical College of Virginia.

The Tri-State Medical Association of the Carolinas and Virginia

Will have its twenty-seventh annual meeting in Richmond, Va., February 18 and 19, with probably a brief session on the 20. The first meeting will be held in the auditorium of the Jefferson Hotel at 10 A. M., February 18. By resolution adopted at the last meeting, the number of papers on the program will be limited to twenty. An interesting and pleasant time will be enjoyed by those attending. Dr. F. H. McLeod, Florence, S. C., is president, and Dr. James K. Hall, of Westbrook Sanatorium, Richmond, Va., secretary-treasurer.

Dr. Sydney J. Baker

Has returned to his home in Richmond, after several months spent in study in New York City.

The Annual Report of the Chief of the Children's Bureau,

Washington, D. C., shows that many phases of child welfare and practically every state in the Union were touched during the course of the year's work by the Children's Bureau. Scientific investigations into problems affecting childhood were made by the Bureau's divisions of child hygiene, maternity and infancy welfare, social service and its industrial division. Active co-operation with State bureaus and commissions dealing with children was maintained by this bureau.

Hospital Founded by Appalachia Masons.

The Appalachia, Va., Masonic Lodge recently purchased a fourteen-room house in that place which is to be directed by them and known as the Masonic hospital. This institution will be open to every one and will be ready for service at an early date.

Dr. P. G. Hamlin,

Of the Medical Aviation Corps of Long Island, was a recent visitor in Williamsburg, Va., where he was for some time connected with the staff of the Eastern State Hospital.

Two Added to Staff of Evangeline Booth Hospital.

Dr. Warren T. Vaughan will be connected with the medical staff of Evangeline Booth Hospital, Richmond, this year, as diagnostician and consultant, and Dr. Joseph Alexander will supervise dental surgery. In addition to these, the medical staff includes Dr. Robert C. Bryan, director, and Drs. Ben Gray, Clifton M. Miller, Thomas W. Murrell, Garland M. Harwood, and Paul Redd. It is announced that ninety-seven adults and fifty-seven children received treatment at this hospital last year.

Investigation of Scarlet Fever.

Highest susceptibility to scarlet fever exists from the ages of one to two years, according to the results of tests made with 7,700 normal persons of different ages. Results of these tests are summarized by Dr. Abraham Zingher in the *American Journal of Public Health.* Nearly three-fourths of the children between one and two years of age were susceptible, but only 14.4 per cent of those from twenty years up. Dr. Zingher reports that investigations

are being made to discover the results of immunization against scarlet fever and diphtheria in the case of 2,000 children under six years of age. Records of these children, who have been immunized, are being kept for comparison with lists of scarlet fever and diphtheria cases developing during the coming year.

The Church Hill Medical Society,

Of Richmond, Va., at its annual meeting last month, elected the following officers for the ensuing year: President, Dr. G. Chambers Woodson; vice-president, Dr. J. W. Hannabass; secretary and treasurer, Dr. R. S. Faris; reporter, Dr. W. H. Whitmore; librarian, Dr. B. L. Phillips. This society meets twice each month at the homes of members, and following the scientific program, supper is served.

Dr. Armistead C. Crump,

Of New York City, has recently been appointed consulting physician in gastro-intestinal diseases at the Presbyterian Hospital, of that city. Dr. Crump is well known in this section, having made his home in Richmond until after his graduation from the former University College of Medicine of Richmond in 1903.

Duty on Barbital and Barbital-Sodium Based Upon American Valuation.

On November 14, 1923, President Coolidge, following the unanimous recommendations of the U. S. Tariff Commission, proclaimed that "to encourage industries in the United States, and for other purposes," the duty on diethyl-barbituric acid and its salts, known as barbital and barbital-sodium in this country, and which are chemically identical with veronal and veronal-sodium, be computed upon the American instead of the foreign valuation. In view of this, announcement has alrealy been made to the medical profession of a reduction in the price of these drugs.

Dr. Alexander G. Brown, Jr.,

Of Richmond, sailed from New York, December 27, aboard the Olympic, for Europe. He will spend several weeks visiting in Paris and touring through Southern France and Italy, going as far as Rome. After this, he will visit some of the chief European medical clinics, including those in London and Edinburgh.

It is particularly interesting to note that Dr. Brown will visit the University of Edinburgh, as two of his ancestors who were American doctors received their medical education at this institution. Dr. Gustavus Brown graduated at Edinburgh in 1706 and practiced in southern Maryland, and his grandson, Dr. William Brown, who later served as surgeon-general in the American Revolution, also received his medical diploma from this University in 1770. Dr. William Brown practiced his profession in Alexandria, Va.

Increase in Mortality Rate.

Mortality rates in the United States for 1923, just made public, showed a death rate for that year of 12.3 per 1,000 population, as compared with a rate of 11.8 for 1922. There was a decrease in the death rate from tuberculosis and diabetes mellitus and the rate for deaths from typhoid fever was the lowest ever shown in the registration area. However, the cancer rate continues on the increase and in 1923 there was also an increase in the rates from influenza, pneumonia, diseases of the heart, measles, cerebral hemorrhage, whooping cough, automobile accidents, nephritis, railroad accidents, accidental falls, and puerperal causes.

Dr. M. S. Duling,

Who was recently associated with Dr. John P. Haller, at Boissevain, Va., has moved to Charleston, West Virginia, and is now on the staff of the Staats Hospital at that place.

Dr. W. P. Burton has succeeded Dr. Duling at Boissevain.

Dr. S. E. Massey

Announces his removal from Roanoke, Va., to Beech Fork, McDowell County, West Virginia.

Dr. Horace T. Hawkins,

Clover, Va., has been elected worshipful master for 1925 of the Hurt Lodge, No. 26, A. F. and A. M., of Scottsburg, Va. As master of the Lodge, he will represent his Lodge in the sessions of the Grand Lodge, in February.

Dr. and Mrs. B. L. Phillips,

Of Richmond, have been recent visitors at Palmyra, Va.

Drs. A. E. and J. W. Turman,

Richmond, were called to Floyd County, the middle of December, by the illness and death of their father.

Memorial Tablet to Dr. Newton Unveiled.

A bronze tablet, in memory of Dr. McGuire Newton, of Richmond, was unveiled at the Children's Memorial Clinic of this city, on the

afternoon of December 23, with appropriate exercises. The tablet was purchased with contributions made by former patients of Dr. Newton.

Change in Distribution of Sofie A. Nordoff-Jung Cancer Prize.

The commission for the distribution of the prize for cancer study, founded by Doctor Sofie A. Nordoff-Jung, in agreement with the foundress, has resolved to distribute the prize from now on only every two years, to the double amount of the sum allotted heretofore, that is one thousand ($1,000) dollars. The next prize will reach distribution in 1926.

Dr. John A. Gibson

Has returned to his home in Leesburg, Va., after a visit to relatives in Georgetown, South Carolina.

Dr. and Mrs. Julian F. Ward,

Winchester, Va., are home again after a visit to friends in Baltimore, Md.

Dr. and Mrs. J. Fulton Williams,

Charlottesville, Va., recently enjoyed a vacation at Waynesboro, Va.

Dr. A. W. Terrell,

Lynchburg, Va., has been elected a member of the board of directors of the Guarantee Title and Bond Company, which has been formed in that city, under a Virginia charter, for the purpose of insuring titles to real estate, making loans on improved realty, etc.

Dr. Northington Succeeds Dr. Townsend as Editor.

With the December issue of *Southern Medicine and Surgery*, published at Charlotte, N. C., Dr. James M. Northington took over the editorship of this publication. He succeeds Dr. Maurice L. Townsend, who has ably conducted this journal since the death of Dr. E. C. Register, several years ago. Dr. Townsend has accepted an appointment on the N. C. State Board of Health to direct its educational work.

Mr. Aubrey H. Straus,

Director of Laboratories for the State Board of Health, and the Richmond Health Bureau, has been granted a five months' leave of absence. Mr. Straus left January 1st for Baltimore, where he intends to undertake special studies in the Johns Hopkins School of Hygiene and Public Health.

Dr. I. C. Riggin, State Epidemiologist, has been appointed Acting Director of Laboratories during his absence. Miss Adah Corpening will continue in her present capacity of Assistant Director of the Laboratory.

Drs. E. H. Claud and L. A. McAlpine

Have returned to their homes in Portsmouth, Va., after spending a short time in Boydton, Va.

Annual Report of Surgeon General, U. S. Navy.

This last annual report shows that the professional work of the Medical Department has been of the high standard mentioned in previous reports. The naval hospitals are in excellent condition and the equipment is adequate and the personnel professionally alert. The bureau has continued its educational policy, and post-graduate instruction of members of the Medical Department who have displayed efficiency in their calling has been carried on systematically. During the fiscal year, fifty-two medical officers were lost by resignations, etc., and seventy-eight medical officers appointed.

This report shows that less sickness and resulting disability were experienced than in most recent years. Communicable diseases caused comparatively little interference with the work of the Navy, if venereal diseases be excepted. There was a slight increase in the death rate for 1923 over 1922, which was due almost entirely to the fact that twenty-three men were drowned when two destroyers were wrecked and that there were twenty-four deaths caused by measles in comparison with one the year before, which was not a measles year.

Dr. and Mrs. J. C. Flippin,

University, Va., spent the holidays in Danville, Va.

Dr. Robert Whitehead,

Meherrin, Va., spent the Christmas vacation at the home of his parents, in Amherst, Va.

Winchester Hospital Seeks to Change Charter.

Directors of the Winchester, Va., Memorial Hospital, have petitioned the State Corporation Commission to amend the hospital's charter so that it will be enabled to accept and apply certain specific benefactions, which it could not do under its original charter. This hospital is now planning also to raise approximately $40,000 for a new central heating plant and the enlargement of the nurses' home. This last improvement is necessary, as the hospital plans to take on additional nurses to comply

with the standards required by the American College of Surgeons.

"Surshine" Clinic, England.

Hull, England, is reported the first city to establish a clinic for the treatment of babies and children by artificially produced light rays having the curative qualities of direct sunlight. Malnutrition and rickets have been treated with marked success, it is said.

Tryparsamide Available.

The Rockefeller Institute for Medical Research has announced the release of the drug known as Tryparsamide for use in the treatment of human and animal trypanosomiasis (African sleeping sickness and *mal de caderas*) and selected cases of syphilis of the central nervous system. This action is based on results reported from clinical investigations which have been in progress for several years. The drug will be manufactured by the Powers-Weightman-Rosengarten Co., of Philadelphia, and will become available through the regular trade channels about January 1, 1925. In releasing the drug for the benefit of the public, the Rockefeller Institute desires it to be known that the Institute does not share in any way in profits that may be derived from the sale of the drug and that, with the cordial cooperation of the manufacturers, provision has been made for the maintenance of a schedule of prices on as low a basis as possible.

Dr. John R. Atwell

Has returned to his home at Wicomico Church, Va., after undergoing an operation in a Baltimore hospital.

Memorial Tablet to Dr. Johnston.

A bronze tablet in memory Dr. George Ben Johston was presented Johnston-Willis Sanatorium, Richmond, on December 20, by a group of prominent local physicians. Dr. Murat Willis, who was associated with Dr. Johnston for a number of years and with him founded the hospital, presided at the presentation exercises. Ex-Governor Henry C. Stuart was the principal speaker; Dr. W. K. McCoy, Gum Spring, Va., made the presentation, and Mr. Eppa Hunton, Jr., received the tablet on behalf of the hospital. The inscription is as follows: "To the memory of George Ben Johnston, M. D., L.L.D.; a lover of the poor; a friend of the physician; an eminent teacher, and a master surgeon; 1852-1916." It was placed on the west wall of the hospital lobby.

The Annual Report of the Surgeon General of the Public Health Service,

For the fiscal year ended June 30, 1924, would indicate that this Service is keeping up its good health work, although the general death rate for 1923 was slightly higher than for 1922, in twenty-five of the thirty-six states for which data are available. There were reported 30,771 cases of smallpox in forty-five states, which shows that this disease is much more prevalent in the United States than in European countries. Approximately one-fifth of all cases of smallpox reported occurred in the United States, which Surgeon General Cumming states is due to neglect of vaccination, re-vaccination, and in part to organized opposition to this most efficacious measure.

One of the many interesting facts brought out in this report was the increase in the length of human life. This in the sixteenth century was estimated to be between eighteen and twenty years; at the close of the eighteenth century, it was less than 25 years, and, as late as 1900, it was only between forty-five and forty-eight years. The present average length of life in the United States is estimated at fifty-six years, and approximately fifteen of these years have been added to our span of life in this country since 1870.

Dr. and Mrs. Frank P. Smart

And children, of Norfolk, Va., spent the Christmas holidays at Crozet, Va.

The Loudoun Hospital,

At Leesburg, Va., has been presented with $1,500, part of which will be used for the endowment of a bed and the balance for philanthropic purposes.

Dr. Randolph Honored.

Dr. Buckner M. Randolph, Washington, D. C., an alumnus of the Medical College of Virginia in the class of '98, has been presented with the cross of the French Legion of Honor by Ambassador Jusserand at the French Embassy in Washington. This was given in recognition of Dr. Randolph's services for thirteen years as physician to the embassy in Washington. He also examined many French soldiers called to arms when war was declared in 1914.

Hospital Destroyed by Fire.

The Civic League Hospital, at Jackson, Tenn., on December 9th was destroyed by fire which originated near the roof of the building. Eighteen patients were in the building at the time and all were removed to safety.

Dr. and Mrs. M. R. Faville

And daughters, of Roanoke, Va., spent the holiday season with friends at University, Va.

Doctors on Hospitalization Committee, American Legion.

Dr. Israel Brown, Norfolk, is the chairman of the Virginia American Legion hospitalization committee, appointed the middle of December. Other doctors on this committee are Dr. Jack Witten, North Tazewell; Dr. Hugh T. Nelson, Charlottesville; Dr. R. C. Fravel, Richmond; and Dr. Hugh H. Trout, Roanoke.

Dr. H. F. Hoskins,

Saluda, Va., with several friends, spent sometime in December deer hunting in the mountains of North Carolina.

Dr. A. M. Byrd,

For the past two years associated with Dr. W. R. Williams, at Richlands, Va., has resumed private practice at the same location.

William Holland Wilmer Foundation.

Under the auspices of this Foundation, there is to be established at Johns Hopkins Hospital and Medical School, the Wilmer Ophthalmological Hospital and Clinic for the study and treatment of diseases of the eye. It will have as its director Dr. William H. Wilmer, an alumnus of the University of Virginia, who, for a number of years has been one of the most prominent ophthalmologists in Washington, D. C.

Dr. and Mrs. S. R. Jordan

And little daughter, of Townsville, N. C., are spenling the winter at De Land, Fla.

Major Allen J. Black,

Of the medical corps, U. S. Army, now stationed at Fort Andrews, Mass., in renewing his membership in the Medical Society of Virginia for 1925, writes that "The Monthly is a most welcome visitor always. Besides the enjoyment of the excellent, high grade papers, it brings news of old friends in Virginia."

We hope this will prove an incentive for our readers to send us news items about themselves and their friends, whenever occasion arises.

Dr. and Mrs. John T. R. Sweeney,

Richmond, are receiving congratulations on the arrival of a little daughter on December 23.

Professor Bergonie Dead.

News has been received in this country that Professor J. Bergonie, an outstanding figure in the development of the science of roentgenology, died in France, early in this year. Despite personal suffering, he continued his work until shortly before his death. The French government recently awarded Professor Bergonie the Grand Cross of the Legion of Honor in recognition of his heroic contributions to science.

Dr. E. M. Wilkinson,

Of Clinchfield, Va., has located temporarily at Fremont, Va., pending the resuming of operations of mines at Clinchfield.

Dr. James H. Smith,

Of Richlands, Va., of the class of '04, University College of Medicine, spent the holidays with his family, at Johnson City, Tenn.

Dr. L. M. Abbott,

Who was for a time at Flinn, Va., is now located at Lignite, Va.

Dr. Susan A. Price,

Who has been spending some time at her home in Marlinton, W. Va., is now connected with the medical staff of Eastern State Hospital, at Williamsburg, Va.

Dr. William P. Bittinger,

Who graduated from Medical College of Virginia in 1923, and has since been connected with Pine Camp Hospital, Richmond, has located in Huntington, W. Va., with offices at 1018 Sixth Avenue.

Unit to be Added to Hospital.

Plans are being formulated by the board of directors of Memorial Hospital, Lynchburg, Va., for the building of a second unit, this year, which will provide about fifty additional beds. The cost of this will be approximately $85,000. This hospital is owned by the Marshall Lodge of Masons.

The Medical Society of the District of Columbia,

At its annual meeting in December, elected Dr. Thomas A. Groover president, Drs. Oscar B. Hunter and John A. Foote vice-presidents, and Dr. Coursen B. Conklin, all of Washington, secretary-treasurer, for the ensuing year.

Dr. J. W. Reed,

Of Norfolk, Va., is much improved following an operation recently performed at St. Vincent's Hospital, that city.

New Health Officer.

Dr. Samuel Downing, Newport News, Va., has been appointed acting health officer of that city, to fill vacancy caused by the resignation of Dr. Coleman B. Ransome.

Dr. Horace G. Longaker, of Newport News, has been appointed assistant health officer.

Dr. J. M. Talbee,

Formerly of Coaldan, Va., has accepted a position with a coal corporation in West Virginia.

Dr. Eliot Honored.

A number of medical friends of Dr. Llewellin Eliot, of Washington, D. C., tendered him a luncheon on December 16, which marked his completion of fifty years of practice in Washington.

The Los Angeles Times

Has just issued its Midwinter Number, a feature it started when Los Angeles had a population of less than 25,000. The Annual tells of the immense forward strides made during the past year by a city and suburbs of approximately a million and a half people. This amazing story of development, in seven illustrated divisions, depicts Southern California as America's ideal summer as well as winter resort, and makes one have the fever to go and see for himself.

Dr. Houston R. Farley,

Of the class of '04, University College of Medicine, and a native of Giles County, Va., after a number of years as surgeon in the U. S. Navy, has opened offices at Pulaski, Va., and will specialize in surgery.

Dr. D. Hunter Marrow,

After spending the summer and fall months at Union Level, Va., has returned to Daytona, Fla., for the winter season.

Dr. E. V. Valz,

Who has for some time been commander of the medical service on the U. S. S. Arkansas, has been transferred to the Naval Air Station, at Pensacola, Fla.

Obituary

Dr. John Nottingham Upshur,

Richmond, died at his home in this city, December 10, after a short illness. He was born in Norfolk, Va., nearly seventy-seven years ago. Dr. Upshur received his academic education at Virginia Military Institute and, at the age of sixteen, entered the Confederate service in the war between the states and was wounded at the battle of New Market. He graduated from the Medical College of Virginia in 1868, since which time he had practiced his profession in this city and was recognized as a leader in the set known as "family physicians." He was a charter member and ex-president of the Medical Society of Virginia, ex-president of the Richmond Academy of Medicine, and of the Tri-State Medical Association of the Carolinas and Virginia, and a vestryman of St. James Episcopal Church, in all of which he was actively interested.

For a number of years Dr. Upshur was connected with the teaching staff of the Medical College of Virginia, having had charge of several different chairs. He is survived by his widow and four children, two of whom are Dr. F. W. Upshur, Richmond, and Major Alfred P. Upshur, of the medical corps, U. S. A., stationed at Galveston, Texas.

Resolutions by Richmond Academy of Medicine, on Death of Dr. Upshur.

At one o'clock in the morning of the tenth of December, 1924, a distinguished fellow of the Richmond Academy of Medicine died. The death of Dr. J. N. Upshur terminated the career of one of Richmond's leading practitioners, and one of the oldest and most influential members of this society. A life so useful, eminent and consistent in virtue, may justly receive a preamble concerning its leading items, before this membership, assembled to do honor to his memory.

John Nottingham Upshur was born at Norfolk, Va., February 14, 1848; he was educated at the Virginia Military Institute; he received his medical education at the Medical College of Virginia, graduating in 1868. From the time of graduation to his last sickness, Dr. Upshur gave practically his entire time to the practice of medicine in the City of Richmond. He was a charter member of the Richmond Academy of Medicine, and was a loyal and faithful member; he was a distinguished president of the society for a term; he was a charter member also of the Medical Society of Virginia; its president in 1902-03; an honorary member in 1903 to the date of his death. Dr. Upshur's professional work was in the Faculty of the Medical College of Virginia. After some years of teaching in minor positions, he was made Professor of Materia Medica and Therapeutics from 1884 to 1894; Professor of Practice of Medicine from 1894 to 1899; Emeritus Professor of Practice of Medicine from 1899 to the day of his death.

Dr. Upshur was an active member of the American Medical Association, the Tri-State Society, the Southern Medical Association. He was a more or less regular contributor to the clinical literature of his time. He attended medical societies, read carefully prepared papers and discussed subjects presented. He was a leading man.

The foregoing brief recital of some of the points in the life history of the lamented fellow is all too inadequate as an expression of what the life of Dr. J. N. Upshur means to this Academy.

Born of a long American ancestry, filled with the breeding of a long line of Virginia's best tradition and culture, educated and trained by a mother and father, who drew deeply from an inheritance of Virginia's finest folk, Dr. John Nottingham Upshur, dying in his 76th year, having practiced medicine in Richmond for over fifty years, may well serve for our membership as an example of that fine type of Christian physician whose works are worthy of emulation and recital.

The professional qualities of our departed fellow

are known. He was earnest, accurate and thorough in his mental processes. He applied his mind with care to scientific medicine. During and following his professional years he was a leading practitioner and consultant in this city.

His teaching was effective. He discoursed upon medical subjects with clearness. His students held him in high regard, and he was ever ready to serve.

His practice was large in the fullness of his career and he spent himself freely in his work. He was an upright man and he adhered to the highest ethical standings in personal, professional and public life. He was a follower of the right as he saw it and he was ever ready to defend a position or a cause. He was a religious man—a devoted churchman. He was persuaded that neither death nor life, nor angels, nor principalities, nor powers, nor things present, nor things to come, nor heights, nor depth, nor any other creature could separate him from the spiritual side of life. He was no materialist; he was a scientific and successful man of medicine, but he believed in and lived in the belief that spiritual life was the highest state of man.

Following the paths of righteousness and pursuing the duties of a physician through many years, this honored fellow left a memory worthy of contemplation and emulation.

So it is with a feeling of deep appreciation of the superior qualities of the service and life of Dr. John Nottingham Upshur, an ex-president and charter fellow of this society, that we bow with recognition to the will of a Supreme Being on the occasion of his death.

And, Be it Resolved, That in honor of his memory a page in the minute book of this society be dedicated on which this appreciation shall be inscribed, that in testimony of the sympathy felt for the family of our deceased comrade, a copy of these resolutions, with preamble, be sent the family, and that the same be published in the *Virginia Medical Monthly.*

A. G. Brown, Jr.,
P. W. Howle,
R. C. Bryan,
Committee.

Dr. Robert French Compton

Died at his home in Charlottesville, Va., November 21, 1924, after a long illness. He was born in Harrisonburg, Va., forty-nine years ago. After attending the academic department of the University of Virginia, he took up the study of medicine and received his medical diploma from the University in 1900. Following this, he served a year as demonstrator of anatomy in the medical school of his alma mater. He then spent several years studying in New York and attended various European clinics, preparing to specialize in diseases of the ear, nose and throat. On returning to Charlottesville, he was elected to the professorship of oto-laryngology in the Medical Department of the University of Virginia and was also visiting surgeon to University Hospital in this branch. He had been a member of the Medical Society of Virginia since 1906. In addition to his interest in the medical profession, Dr. Compton was an active worker in the Presbyterian church, at the time of his death being chairman of the board of deacons of that denomination in Charlottesville. His widow and two daughters survive him.

Dr. James Terrell Redd

Died December 13, at his home at Churchland, Va., after a long illness. He was a native of Henrico County and his funeral was held from Emmanuel Church, just outside of Richmond, in which church he grew up. Dr. Redd graduated from Richmond College in 1888 and served as adjunct professor of mathematics in the College until he took up the study of medicine at the Medical College of Virginia. He obtained his diploma in medicine in 1895 and shortly thereafter moved to Churchland where he practiced until his last illness. He was actively engaged in church work and was also a Pythian and a Mason. He had been a member of the Medical Society of Virginia since 1895. Dr. Redd is survived by his wife, two sons and a large family connection.

Dr. John Byvancke Dickinson,

Of Cismont, Va., died December 17, death being attributed to suicide. He was a native of England and about fifty-five years of age. He graduated from the Medical College of Virginia in 1893 and had practiced in Albemarle for the past ten years. He was at one time a member of the Medical Society of Virginia. The ill health of his wife, in Bermuda at the time of his death, and late business reverses are presumed to have been the cause of his taking his life.

Dr. Isaac Norval Baker

Died early in December at his home at Whitacre, Va., at the age of eighty-three years. He graduated from the Southern Botanico-Medical College at Macon, Ga., in 1884, but had not been in practice for some years.

Dr. Nicholas J. Worthington.

News has been received at Winchester, Va., of the death of Dr. Worthington, which occurred recently at his home in Guelo, South Rhodesia, Africa, as a result of double pneumonia. He was a native of Maryland but lived for a time at Winchester. He was a graduate of the medical department of the University of Virginia but had been engaged for some years in gold mining in South Africa.

Putting Mother's Milk in Baby's Bottle

COW'S MILK contains a much higher percentage of casein than mother's milk because nature intended it for the powerful digestive ability of the calf.

On the other hand, mother's milk contains a lesser percentage of casein and a much higher percentage of lacto-albuminoid—nature's protective colloid which enables the delicate infant organisms to easily digest and assimilate all the nourishment.

When cow's milk is fed to the infant, modification is necessary to make it more nearly correspond to mother's milk.

First among the available colloids is pure, plain gelatine. (Zsigmondy, Z. Anal. Chem. 40, 1901). When 1% of Knox Sparkling Gelatine, completely dissolved, is added to the prescribed milk formula, the curdling of the casein by the enzyme acids of the gastric juice is prevented, and the nourishment obtainable from the milk is increased by about 23%. It is just like putting mother's milk in the nursing bottle.

Here is the most approved method of modifying baby's milk with gelatines:

Soak for ten minutes one level tablespoonful of Knox Sparkling Gelatine in ½ cup of cold milk taken from the baby's formula; cover while soaking; then place the cup in boiling water, stirring until gelatine is fully dissolved; add this dissolved gelatine to the regular formula.

For children and adults follow the same method in the proportion of ½ teaspoonful of gelatine to a glass of milk. Because of its purity, it is essential to specify Knox Sparkling Gelatine.

A package of Knox Sparkling Gelatine, together with the physician's reference book of nutritional diets will be sent free, upon request, if you will address the Charles B. Knox Gelatine Laboratories, 441 Knox Ave., Johnstown, N. Y.

Aquascutum Ltd. REGISTERED

AN ENGLISH GREAT COAT —Cravenetted.

¶IDEAL FOR PHYSICIANS.

Hanan Shoes

C. N. Berry & Co.
ESTABLISHED 1879
RICHMOND, VA.

Dunlap Hats

VIRGINIA TRUST COMPANY
RICHMOND, VA.
THE SAFE EXECUTOR

Capital $1,000,000 Surplus Earned $1,000,000

ESTABLISHED 1892

To act as Executor, Guardian and Trustee
$25,000,000
of investments held in Trust

Confidential Interviews Invited.

DOCTORS administer to the sufferings of the living and bring them comfort.

THIS BANK administers to the estates of the dead and brings to them protection and economical administration.

Let us have your will prepared without cost to you.

MERCHANTS NATIONAL BANK
RICHMOND, VIRGINIA

Capital, Surplus and Undivided Profits over $2,400,000.00

"SAFEST FOR TRUSTS"

Virginia Medical Monthly

OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

Vol. 51, No. 11.
WHOLE No. 872.

RICHMOND, VA., FEBRUARY, 1925

$2.00 A YEAR
20 CENTS A COPY

CONTENTS.

ORIGINAL COMMUNICATIONS:

Spinal Anesthesia. Daniel A. Orth, M. D., Chicago, Ill. 667

Frequency of Urination. Austin I. Dodson, M. D., Richmond, Va. 674

A Review of Three Hundred Cases of Kidney Infection. W. Calhoun Stirling, M. D., F. A. C. S., Washington, D. C. 679

Some Remarks on Unilateral Hydronephrosis. John H. Neff, M. D., University, Va. 683

The Surgical Treatment of Pulmonary Tuberculosis. F. S. Johns, M. D., Richmond, Va. 687

Hemorrhagic Disease of the New Born. Lawrence T. Royster, M. D., University, Va. 693

Treatment of Duodenal Ulcers. Stuart McGuire, M. D., Richmond, Va. 697

A Cheap Permanent, Sanitary Toilet for Rural Districts. B. B. Bagby, M. D., Richmond, Va. 700

The Origin and Evolution of the Attributes of Man. The Soul as a Word Thought. Man's Spirit and the Cosmic Process. Charles E. Bowles, M. D., Pulaski, Va. 702

A Plea for a More General Use of Diphtheria Toxin-Antitoxin in Infants and Children. T. D. Jones, M. D., Richmond, Va. 711

Some Clinical Manifestations of Pulmonary Tuberculosis. Frank B. Stafford, M. D., Charlottesville, Va. 714

PROCEEDINGS OF SOCIETIES 717

THE TRUTH ABOUT MEDICINE 718

BOOK ANNOUNCEMENTS 721

EDITORIAL 723

NEWS NOTES 724

OBITUARY 733

INDEX OF ADVERTISERS—Advertising Page 5.

CALCREOSE

CALCIUM AND TUBERCULOSIS

CALCIUM starvation has been suggested by phthisiologists as a factor in the etiology of pulmonary tuberculosis. By prescribing CALCREOSE some of the needed calcium may be supplied.

CALCREOSE (calcium creosotate) is a mixture containing in loose chemical combination approximately equal weights of creosote and lime. It has the pharmacologic activity of creosote as used in the adjuvant treatment of tuberculosis, but differs from creosote in that it apparently does not have any untoward effect on the stomach.

POWDER—TABLETS—SOLUTION

Samples of Tablets on Request

THE MALTBIE CHEMICAL COMPANY

Newark, New Jersey

INFANT DIET MEAD'S MATERIALS

The *Real* Value of MEAD'S DEXTRI-MALTOSE *in* Infant Feeding

MEAD'S DEXTRI-MALTOSE (Dextrins & Maltose) is a form of carbohydrate that, when added to cow's milk and water in the proportions best suited to meet the nutritional demands of the bottle-fed infant, usually gives gratifying results. *These gratifying results* are due to:

1st. Dextri-Maltose is a form of carbohydrate readily assimilated by the average infant and less liable to cause digestive disturbances.

2nd. *The control of the infant feeding case which the physician can easily exercise due to the ethical policy of Mead Johnson & Company.*

The Mead Policy

Mead's Infant Diet Materials are advertised only to physicians. No feeding directions accompany trade packages. Information in regard to feeding is supplied to the mother by written instructions from her doctor, who changes the feedings from time to time to meet the nutritional requirements of the growing infant. Literature furnished only to physicians.

In addition to

MEAD'S DEXTRI-MALTOSE

Mead also offers for the physician's approval

MEAD'S CASEC

(*For the simple preparation of protein milk*)

and

MEAD'S COD LIVER OIL

(*A standardized antirachitic agent*)

Samples of these infant diet materials and literature describing their use will be sent at the physician's request.

MEAD JOHNSON & COMPANY

Makers of Infant Diet Materials

EVANSVILLE, INDIANA, U. S. A.

Virginia Medical Monthly

Official Organ of the Medical Society of Virginia

Vol. 51, No. 11.
WHOLE No. 872.

RICHMOND, VA., FEBRUARY, 1925

20 CENTS A COPY
$2.00 A YEAR

Original Communications

SPINAL ANESTHESIA.*

By DANIEL A. ORTH, M. D., Chicago, Ill.

To justify this paper we will give briefly our experiences, the technique employed, and conclusions drawn from over fourteen hundred cases of spinal anaesthesia performed by Dr. George Mueller and myself in our clinics at St. Mary of Nazareth and Columbus Hospitals, and in the clinic of Professor Albert J. Ochsner at Augustana Hospital. Judging from our success, we do not hesitate to encourage others to employ this method in operations below the costal arch, with patients for whom a general anaesthesia is contra-indicated.

The history of spinal anaesthesia dates back to the discovery of cocain by Niemann in 1859. The discovery of the local anaesthetic properties of cocain, by Schraaf in 1862, was the second step in the development of this method. With the application of this discovery to surgical purposes, Dr. J. Leonard Corning, of New York, in 1885, employing cocain, experimented extensively and successfully with spinal anaesthesia. His method, notwithstanding his success, did not meet with general favor and was accordingly dropped until taken up some years later by Bier, of Kiel, in 1898. Bier also used cocain, practicing on himself, his assistant and six patients, producing anaesthesia up to the umbilicus in all his cases. In the *Deutsche Zeitschrift f. Chic.*, 1899, in which Bier's cases were reported, he urged great care in the use of this method on account of the dangerous effect of the drug. He accurately predicted, however, that the development of chemistry would produce a drug which could be used safely for spinal anaesthesia.

In 1905, at the German Surgical Congress, Bier called attention to the use of stovain, discovered by Fourneau in 1904, which, when used with one of the supra-renal preparations considerably lessened the danger attending its use. At this time, he expressed the opinion that spinal anaesthesia could be recommended for clinical use, although it had not yet been perfected.

Credit for the *first surgical operation* under spinal anaesthesia, in America, is given to Tait and Cagliere. Ostectomy of the tibia was successfully performed, with a three per cent solution of cocain, in a patient fifty-four years of age.

The distinction of *perfecting the technique* belongs to Jonnesco, and his report in 1908 to the Congress of the International Society of Surgeons in Brussels, popularized the method. Following this report, spinal anesthesia began to be used extensively. Unfortunately, there was a reaction, due entirely to the recklessness with which the method was employed, and the result was that when statistics were compiled, they showed that ether anaesthesia had a much greater range of safety.

Besides stovain, novocain, alypin and tropacocain were introduced, but novocain had been generally adopted in this country until its supply was shut off by the World War, when apothesin was manufactured and introduced by Parke, Davis & Company. It is our experience that both apothesin and novocain possess about the same advantages, excepting that apothesin is more toxic than novocain, which is offset by the smaller dose required and by its more lasting effect.

THE SAFETY OF SPINAL ANAESTHESIA DEPENDS UPON—

1. The purity and stability of the drug, as well as the dosage in individual cases.
2. The combined effects with the preliminary narcotic.
3. The site of puncture and method of injection.
4. A thorough knowledge of the drawbacks —their prevention and treatment.
5. The experience of the operator.

THE PURITY OF THE DRUG AND ITS LIABILITY TO DECOMPOSE.—We employ apothesin with adrenalin for the following reasons:

a. It is about six times less toxic than cocain when combined with adrenalin preparations.

b. Recovery from toxic doses is very prompt.

*Read by invitation at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

c. It stands boiling without any perceptible loss of activity. Decomposition, if any, does not exceed one per cent of the amount of apothesin. No toxic products result from sterilization by boiling. The products of hydrolysis of apothesin are less toxic than the anaesthetic itself.

d. It is free from irritating action.

e. It is physiologically compatible with adrenalin preparations.

The last advantage is of great importance because—spinal anaesthesia causes a considerable fall in blood pressure, by cutting off nerve communication with the vasomotor center in the brain from a large vascular field, the splanchnic area and the lower extremities. (Crile-Anoci-Association, p. 126). This is prevented by the direct action of adrenalin on the muscle fibres in the vessel wall, independently of the vaso-motor system.

Adrenalin prevents too rapid absorption of apothesin into the circulation by contracting blood vessels in and about the nerve roots, thereby minimizing toxic symptoms.

Adrenalin also increases the anaesthetic potency of the drug, prolonging the anaesthetic period, thus increasing the efficiency of relatively small doses.

Apothesin and adrenalin are conveniently supplied in tablet form. Each tablet contains apothesin gr. 3/5, adrenalin gr. 1/1600.

For operations below the umbilicus, two tablets are dissolved in 3 c.c. of distilled water, making a two and two-thirds per cent solution. For operations above the umbilicus, three tablets are dissolved, making a four per cent solution.

The dosage is further regulated according to the condition of the patient. In debilitated subjects, in whom there is a low intraspinal pressure, ½ to 2/3 of the apothesin is injected, as the case may require, which I shall explain later. If this dosage is not sufficient to produce complete anaesthesia, a light ether anaesthesia will generally suffice.

These tablets can be relied upon in every respect with the exception of their sterility. Although apothesin has definite antiseptic action, killing the gonococcus in one, one and one-half, two per cent solution, or over (thereby lessening the danger of infecting the spinal sac with septic organisms), the manufacturers do not feel that it is sufficient to depend upon this for self-sterilization of the solution. Therefore, it is necessary to sterilize the solutions made from these tablets before use. Our solutions are prepared as follows:

An ordinary test tube and beaker are boiled for fifteen minutes in water free from bicarbonate of soda. We specify this because both apothesin and adrenalin are chemically affected by alkalies. For the same reason, we boil our needle, syringe, etc., in water free from bicarbonate of soda. Utensils and syringe are then carefully rinsed in freshly distilled water. We pour 3 c.c. of freshly distilled water (previously boiled for one-half hour or more) into the test tube, add the tablets and bring to a boil six to eight times to sterilize. We do not boil the solution continuously because adrenalin loses its effect by continuous boiling.

Only Clear and Colorless Solutions Should be Used.—If the solution is not perfectly clear, but cloudy, it has come in contact with alkalies. Change in color to a pinkish or brownish red is the result of decomposition of adrenalin by oxidation. This generally occurs when the tablets have been exposed too long to the air, or when the solution is prepared too long before use. Therefore, these tablets should be kept in air-tight containers, and the solution prepared just before operation. If these precautions are taken, the toxicity of the solution is lowered or entirely removed. The solution is poured into the beaker, from which it is drawn into the syringe. The specific gravity of our solution is approximately that of the spinal fluid; consequently, it is less likely to diffuse from the site of injection. Neither Babcock's lighter fluid, with alcohol, nor Barker's heavier solution, with glucose, has been tried.

The Combined Effects With the Preliminary Narcotic.—We recognize the advisability of employing a preliminary narcotic for the following reasons:

1. It produces a more profound anaesthesia with a smaller amount of apothesin—a decided advantage in acute inflammatory conditions of the abdomen where anaesthesia is harder to obtain on account of intense irritation of the nerves.

2. It brings the patient into the operating room without fear.

3. It prevents restlessness on the operating table, which is an advantage, as movements of the head induce nausea, vomiting, etc.

One hour before operation, one-sixth grain of morphine sulphate, dissolved in 2 c.c. of a twenty-five per cent magnesium sulphate solu-

tion is injected subcutaneously, and just before moving patient to the operating room another injection of the same solution is made, containing one-eighth grain morphine sulphate. But in debilitated subjects, one-sixth grain is generally sufficient and if, together with this, they have a low intraspinal pressure, the apothesin is reduced to one-half or two-thirds. The addition of magnesium sulphate produces a more complete relaxation, thereby lessening any resistance when the puncture is made, and in most cases the patient is free from pain from twelve to eighteen hours after operation. In other words, we have the principal advantages of scopolamin without its disadvantages; namely, stupor, respiratory embarrassment, cyanosis, and, several days after the operation, delirium.

Just before the operation, the patient is blindfolded and quietly moved to the operating room. He is placed on his right side, his back is asepticized with benzine, followed by four per cent tincture of iodine, which is washed off with ninety-five per cent alcohol. The field is protected by sterile towels. After observing strict aseptic precautions, we identify our landmarks by placing a towel from crest to crest of the ilium, which is on a line with the center of the body of the fourth lumbar vertebra, and inject the skin at the site of puncture with a two per cent solution of apothesin. An assistant lends aid by holding the patient's legs and head in such a way that the back is bent to increase the space between the lumbar spinal processes (the Katzen-Puckel of the Germans). The needle is introduced about one-half inch to the right side of the middle line and *not in the middle*, so as to avoid the extradural plexus of veins which are in the middle line. Enough cerebrospinal fluid is withdrawn to equal the amount of apothesin solution to be injected.

The Site of Puncture and Method of Injection.—The site of puncture depends upon the height of anaesthesia required. The most favorable site is in the lumbar region. The spinal column slants sacrally between the fourth and fifth, and, dorsally between the third and fourth, lumbar vertebrae; hence, when we require a low anaesthesia, we inject between the fourth and fifth; when a high, between the second and third, lumbar vertebrae.

The spinal cord ends at the lower border of the first lumbar vertebra; hence, to avoid injury to the cord we select a site below this point.

Between the first and second lumbar vertebrae, the cauda equina is arranged in right and left bundles, with a small space from two to three m.m. intervening. Unless you strike this intervening space, you will inject into the bundle of nerves on either side, when the patient will jerk his leg and complain of pain and you will be compelled to withdraw the needle.

Below the second lumbar vertebra the cauda equina is more evenly spread out, not in bundles. When the needle enters here, the nerve roots are generally pushed aside.

The height to which anaesthesia extends depends further upon the strength of the drug—more in high—and upon the amount of the solution—the greater the quantity, the higher the anaesthesia. We increase the quantity of our solution by withdrawing and mixing sufficient cerebrospinal fluid to equal the amount required, as follows:

For perineum, external genitals, and lower extremities, 3 c.c. of a two and two-third per cent solution is injected between the fourth and fifth lumbar vertebrae, without the addition of cerebrospinal fluid.

For operations below the umbilicus, a 3 c.c. of a two and two-third per cent solution, plus 4 c.c. of spinal fluid, is injected between the second and third lumbar vertebrae. This brings our solution high enough to anaesthetize the tenth intercostal, which innervates the peritoneum immediately above the umbilicus; the eleventh, immediately below the umbilicus; and lower down, the eleventh and twelfth intercostal nerves.

For high abdominal operations, we use 3 c.c. of a four per cent solution, plus 7 c.c. of spinal fluid, and inject between the second and third lumbar vertebrae. This brings our solution high enough to anaesthetize the seventh, eighth and ninth intercostal nerves, which innervate the peritoneum of the epigastric and mesogastric regions.

The needle is withdrawn with a quick jerk and the puncture sealed. As soon as the injection is completed, we place the patient on his back with a pillow under his head, to prevent bulbar complications. In about ten minutes the greater part of the anaesthetic solution is absorbed by the nerve roots reached by our injection. It is perfectly safe to place the patient in the Trendelenburg position after this time. The unabsorbed solution, after ten

minutes, is too weak to produce anaesthesia by diffusion higher up (Labat).

A Thorough Knowledge of the Drawbacks, Their Prevention and Treatment.—As the principal drawbacks to spinal anaesthesia are circulatory and respiratory depression, we anticipate these as follows:

1. By employing adrenalin with the apothesin.
2. By injecting subcutaneously caffeine citrate, grs. 3, one and one-half hours before operation; and one grain just before the anaesthetic is administered, the latter dose being repeated every hour for six hours after the operation.
3. By administering the anaesthetic in the lateral instead of the sitting posture.
4. By injecting the anaesthetic solution slowly.
5. By keeping the patient talking and taking deep breaths.

By Employing Adrenalin with the Apothesin.—As before stated, adrenalin prevents too rapid absorption of apothesin into the circulation by contracting blood vessels in and about the nerve roots, thereby lessening toxic symptoms.

By Administering Caffeine Citrate, grs. 3, one and one-half hours before the operation, we are certain of its maximum of stimulation, which begins from forty-five to ninety minutes after it is administered.

Caffeine citrate stimulates the whole nervous system, the brain, medulla, and spinal cord.

By its action on the brain it stimulates psychic function. It produces a sense of wakefulness and counteracts the drowsiness produced by the morphine sulphate solution given as a preliminary narcotic, a decided advantage when the patient's co-operation is necessary to combat symptoms of circulatory and respiratory depression.

By its action on the medullary centers, vasoconstriction takes place, and respiration is stimulated; both number and depth of respirations are increased; hence, respiratory depression is eliminated or greatly diminished.

Caffeine citrate also stimulates all muscle fibres—striped, plain, and cardiac; and, as a result of its direct action on the vessel wall, vaso-constriction is further aided which, together with its stimulating action on the heart muscle, increases the blood pressure, eliminating or lessening nausea and vomiting.

By Administering the Anaesthetic in the Lateral Instead of the sitting posture, the immediate accidents, such as pallor, headache, and syncope are prevented These are never dangerous, pass off quickly when the patient is placed in the recumbent position, but should be avoided as they may induce an unsuccessful anaesthesia in a nervous patient.

By Injecting Our Anaesthetic Solution Slowly.—The slower the injection, the slower the absorption, as the toxicity of the solution varies with the velocity of the injection. Furthermore, a rapid injection increases the height of anaesthesia, which has already been provided for by the dosage and quantity of our solution.

By Keeping the Patient Talking and Taking Deep Breaths.—A competent nurse should be in charge of the patient, to keep him answering questions and occasionally taking a deep breath to keep the brain active and to stimulate the respiratory centers. As long as he is able to do this he is a safe patient.

During the operation (generally ten or fifteen minutes after the spinal injection is made), some patients show signs of nausea and vomiting. This is due to anaemia of the brain, resulting from poor blood pressure. Even with all possible precaution a sudden drop in blood pressure may occur. This condition quickly subsides when the patient is placed in the Trendelenburg position. If, however, this is accompanied by respiratory depression, it is due to an overdose or too rapid absorption of the drug, and artificial respiration should be resorted to until natural respiration has been re-established. If this is not effective, the patient should be turned on his side, lumbar puncture performed, and five grs. of caffeine citrate injected into the cerebrospinal fluid, after which the patient is again placed on his back in the Trendelenburg position and artificial respiration continued. We have never had to resort to this treatment, but it has given good results in the hands of Dr. Francisco Najera, of Mexico City, who has used cocain in over 5,000 cases of spinal anaesthesia without a direct mortality. Doctors A. J. Ochsner, William Mayo and I witnessed several successful operations under this anaesthetic at the Military Hospital in Mexico City —one above the costal arch for abscess of the lung.

Experience of the Operator.—All things considered, the safety of spinal anaesthesia is a matter of the personal equipment in knowl-

edge and technique upon the part of the operator and his ability to recognize and meet complications.

Apparatus

Our apparatus consists of a glass record-syringe, graduated to 15 c.c. and a needle of 10-karat gold. This needle has the advantage of being non-corrosive, is flexible and capable of prolonged boiling. The needle is five inches long, one-sixteenth of an inch in diameter, and holds a stylet to prevent clogging when introduced.

The point of the needle is not too sharp nor too dull. If the point is too sharp, you will pierce the structures without recognizing the resistance offered by the ligamentum subflavum, after piercing which the stylet should be withdrawn and the needle advanced cautiously—a little at a time—until it enters the sac.

If the point is too dull, it will push the dura in front of it, causing the so-called "dry tap" or failure.

The bevel of the needle is short. If the bevel is too long it may only partially enter the sac, spinal fluid will escape, leaving you to think the needle is within the sac; but when the anaesthetic solution is injected most of it escapes extradurally, again causing failure or partial failure. If a long-bevel needle is introduced far enough to overcome this objection, at the site where we inject, it may injure the cauda equina; or if the injection is made higher than the site we advocate in this paper, it may result in injury to the spinal cord.

The toxic symptoms as observed by us—such as nausea, vomiting, faintness, dyspnea, rapid, feeble pulse, pallor, etc., when we used novocain, were due to decomposition of the adrenalin, allowing too rapid absorption of the anaesthetic solution into the circulation, and not to its action upon the higher centers by diffusion. Clear solutions, with the same technique, did not produce these symptoms. Hatcher and Eggleston have shown that slow and continuous intravenous injections of novocain fail to produce lasting effects, even though the total amount was ten times as great as that required by rapid injection to cause death. In a patient with a good heart the dose we employ would have no further effect than to cause these toxic symptoms, which disappear promptly by placing them in the Trendelenburg position, instituting artificial respiration, and injecting subcutaneously three grains of caffeine citrate, if this has not been done. In patients, however, who suffer with poorly compensated valvular lesions, and who have no reserve fund of cardiac strength to draw upon, death may be the result. The only death we have charged to direct mortality was due to decomposition of the adrenalin. This was in a patient sixty-five years of age, with a poor heart.

The after effects of spinal anaesthesia are few and consist chiefly of headaches, incontinence of urine, and partial paralysis of the sphincter ani. These annoyances last from three to five days and require no special treatment. Nausea and vomiting occurred in less than one per cent of our cases and was not accompanied by constant retching and straining. Persisting headaches, paraplegia and medullary lesions, which are attributed to spinal anaesthesia, may be due to syphilis or to faulty technique.

There is a marked and favorable contrast in the condition of spinal anaesthetic patients as compared with general anaesthetic patients; this has been observed and fully commented upon by fellow-patients, nurses, attendants and visitors. The patients usually return from the operating room conversing about the wonders of their own operation, or soon fall asleep and awaken actually refreshed. Inhalation pneumonia from aspiration of mucus and ether is eliminated.

We have classified our operations into four groups and thus give a fair presentation of what we consider indications for its use:

Group 1. This is the largest group and consists of over nine hundred cases in which the wisdom of using a general anaesthetic had to be carefully debated because of heart, lung, kidney, or liver conditions. The heart lesions included valvular disease with poor or broken compensation, myocarditis from the toxines of alcohol, previous acute infectious disease, thyroidal hyper-secretions, and obesity. Lung and bronchial lesions included pneumonia, bronchitis, and asthma. Liver diseases were chiefly limited to cirrhosis and gall-bladder affections. Among the renal lesions were included acute, chronic and mixed nephritides. In an article by Salvador Pascual, of Madrid, on Renal Physiology and Spinal Anaesthesia, he says:

"In principle, all general anaesthesia is dangerous because of the intoxication it produces in the organism. This is of great importance

in patients who have in greater or less degree, lesions of the kidney, an organ of elimination, and of the liver, a defense against intoxication. The oliguria following general anaesthesia lasts three to six days. It may be due either to direct action of the anaesthetic or to that deprivation of food and drink that the patient suffers after the narcosis. To this oliguria is largely due the increase of concentration of all substances dissolved in the urine. In eliminating less water the kidney is obliged to concentrate its elements. But a kidney that was already working with maximum concentration cannot increase this concentration in order to eliminate the urea and is compelled to retain the urea, with possible fatal result. This is the mechanism by which an appreciable number of renal patients die profoundly infected from four to six days after operation. The author has never had any untoward results from spinal anaesthesia."

The occurrence of oliguria after ether anesthesia and its absence after spinal anaesthesia is very noticeable even to the nurses in our complete hysterectomies, in which cases we make it a practice to insert a retention catheter. The patient who has received a general anaesthetic with a normal kidney eliminates only a few ounces of urine the first twenty-four hours; whereas, the other, with a diseased kidney, who received a spinal anaesthetic, eliminates a much greater amount of urine.

The operations in this group represented appendectomies, cholecystectomies, gastro-enterostomies, ovarian cysts, Caesarean section, tuberculous and septic peritonitis, nephrectomies, herniotomies, Lane-plate and autogenous bone work on the lower extremities.

Group 2. This group consisted of over four hundred cases in which the prevention of surgical shock was a serious problem, as an intestinal resection for strangulated hernia in old people; thigh and leg amputation for senile and diabetic gangrene; prostatectomies; extirpation of rectal carcinoma; and abdominal gunshot and stab wounds.

Anoci-association is obtained by spinal anaesthesia. It causes a complete nerve-block, by blocking the transmission of impulses from the periphery to the brain, preventing surgical shock. It is the emergency method in these cases.

In diabetic cases we find that after a short preliminary treatment the patients are fair risks for spinal anaesthesia. Even those not in favor of its use prefer spinal anaesthesia to general anaesthesia in these cases.

I well remember the beginning of spinal anaesthesia in Professor Ochsner's clinic at Augustana Hospital. During the World War it was my great privilege to work with and assist Professor Ochsner. We had been administering spinal anaesthesia for a number of years at St. Mary of Nazareth Hospital, Chicago, but Professor Ochsner did not take to the method, and I was greatly surprised when I was asked to give a spinal anaesthesia to a feeble old lady, suffering with senile gangrene of the left leg. The operation was performed near the noon hour and while Professor Ochsner was closing the wound, this dear old lady said: "I wish you would hurry Dr. Ochsner, I am very hungry and afraid I will miss my dinner." We gave quite a number of spinal anaethesias in Professor Ochsner's clinic after that in urgency surgery of the aged, especially physicians, and I am happy to say—successfully.

Group 3. This group consisted of over seventy-five cases and represented border-line cases which were not seriously enough involved to be included in either of the above groups, and could have taken ether if administered by an expert anaesthetist.

Group 4. This is the smallest group and consisted of only twenty-one cases. The patients in this group displayed dangerous symptoms while taking a previous general anaesthetic.

We have observed in our abdominal work that the anaesthesia sets in later in the parietal peritoneum than in the skin, muscles, fascia, etc., thereby causing a little delay. Permit me to emphasize here that any undue haste or rough manipulation will completely upset the entire anaesthesia. A few minutes of waiting, with a little re-assurance to the patient, who has felt the pain of the knife, careful manipulation of the peritoneum and viscera, and the anaesthesia will prove to be perfect.

As a general rule, relaxation is more complete in spinal anaesthesia, the abdominal wall is paralyzed and softened, and the intestines are contracted, which makes it invaluable in intestinal obstruction. A larger field of operation is the result, fewer laparotomy pads are required and the operation is thereby more readily performed. There is also less difficulty in closing the abdomen.

Occasionally, in operations requiring a great

deal of time, the anaesthesia does not last throughout the entire operation. In such cases ether is given to supplement it, which is generally for a very short period.

We have observed a few cases in which the anaesthesia was apparently complete, but traction on the parietal peritoneum, as occurs in posterior gastro-enterostomies and intestinal resections, causes pain; ether is given while traction is being made, but none during the remainder of the operation.

Failures are due to unstable drugs, improper needles, slipping of needle out of sac, and faulty technique.

Contra-Indications: Blood pressure below 90; all operations above the costal arch; all operations requiring only a light anaesthesia; young, robust individuals; syphilis; superficial infections at or near the site of injection. If unable to vouch for the purity of the drug or the asepsis, and thorough cleanliness of the apparatus, or the technique of the operator, spinal anaesthesia is surely contra-indicated.

In analyzing spinal anaesthesia we have come to the following conclusions:

1. Spinal anaesthesia is of distinct value for patients for whom inhalation anaesthesia is contra-indicated or local anaesthesia is impracticable, in operation below the costal arch.

2. It is best tolerated when most needed—in old people—due to slow absorption of the drug.

3. For feeble, old individuals, it is not necessary to employ the full strength of dose, as for the vigorous.

4. Spinal anaesthesia, when properly given, causes no more discomfort than a hypodermic injection; whereas, nothing is more discomforting than going to sleep with, and recovering consciousness from, a general anaesthesia.

5. Control is exercised by the site and velocity of injections, the proper dosage, the addition of adrenalin, the specific gravity and the quantity of the solution.

6. No preliminary preparations are necessary. Fluids may be taken up to, and right after, operation, which is a decided advantage in renal cases and in the debilitated and weakened from any cause, when maintaining nutrition is of vital importance.

7. A strong recommendation is that by spinal anaesthesia, anoci-association is obtained and operations causing much shock can be more successfully performed.

8. In renal, hepatic and septic cases there is not the added strain of ether elimination to overwhelm the patient.

9. Makes better surgeons, careful manipulations and avoidance of traction being necessary; hence, traumatism is lessened.

10. Ideal in emergency cases.

11. Complete relaxation of the striated muscles and contractions of the smooth muscles are obtained, a decided advantage in intestinal operations.

12. Operating time is shortened; more being possible through a small incision because of a more complete relaxation.

13. There is lessened hemorrhage; this fact is very noticeable.

14. Post-operative retching and straining, nephritis, and inhalation pneumonia do not occur.

15. In a small number of cases we are compelled to give ether, but even in those cases it is very efficient with a small amount of ether and the relaxation is more complete than with a general anaesthesia.

16. Spinal anaesthesia is not a surgical novelty, neither is it on trial, for it has proven its worth and has come to stay. It should be taught and every clinic should be prepared to administer same. Failures diminish with experience.

Bibliography.

Allen, Carroll W.: Local and Regional Anesthesia, pp. 404-453.
Allen, Carroll W.: New Orleans M. & S. J., 1915 and 1916, V. 59.
Allen, Freeman: Spinal Anaesthesia, J. A. M. A., Nov. 23, 1912.
Boldt, Hermann J.: Deaths Caused by Intraspinal Novocain Analgesia, A. J. Obstet., 1916, V. 73.
Bainbridge, W. S.: Spinal Analgesia, J. A. M. A., Nov. 23, 1912.
Babcock, W. W.: Discussion same paper.
Babcock, W. W.: Spinal Anesthesia in Gynec., Obstet., and Abdominal Surgery, J. A. M. A., Oct. 11, 1913.
Babcock, W. W.: A. J. Surg., New York, 1914, V. 28, Quarterly Supplement Anaesthetics.
Braun, Heinrich: Local Anaesthesia; Its Scientific Basis and Practical Use. Translated by Percy Shields, Philadelphia, 1914.
Cabot, Hugh: Chapter LXI—Vol. VIII, Subarachnoid (Spinal) Anaesthesia. Keen's Surgery, pp. 860-867.
Corning, J. Leonard: Spinal Anaesthesia and Local Medication of the Cord, N. Y. M. J., Oct. 31, 1886.
Crile, G. W. and Lower, W. E.: Anoci-Association, pp. 23 and 125.
Dixon, W. E.: Prof. of Pharm., Cambridge and Oxford Univ., 1921 Edition, U. S. Dispensatory.
Hatcher and Eggleston: A Contribution to the Pharmacology of Novocain, Jour. Pharmacol. and Exper. Therap., July, 1916.

Holman, C. C.: Spinal Anaesthesia, with Special Reference to the use of Novocain, Lancet, 1916, V. I.
Houghton, Major J. W. Hobart: Keen's Surgery, V. VI., p. 982.
Hare, Hobart Amory: General Anaesthesia and Anaesthetics. Keen's Surg., Vol. V., p. 1009.
Labat, Gaston: 1922, Regional Anaesthesia.
Luke, T. D. and Ross, J. S.: Anaesthesia in Dental Surgery, 3rd ed., London, 1910.
Mitchell, James F.: Local Anaesthesia, J. A. M. A., Sept. 13, 1913.
Oberton: A. J. Surg., New York, 1916, V. 30, Quarterly Supplement Anaesthesia.
Orth, D. A.: Strangulated Femoral Hernia, Operated on under Spinal Anaesthesia, Surg. Clin. of Chicago, 1919, III., No. 1.
Orth, D. A. and Mueller, Geo.: A Plea for Spinal Anaesthesia, St. Paul. Med. Jour., July, 1917. Pharmacopoeia of the U. S.
Zachrisson, Fredrik: Subarachnoid (Spinal) Anesthesia, Keen's Surg., Vol. V., pp. 1082-1100.

209 *South State Street.*

FREQUENCY OF URINATION.*

By AUSTIN I. DODSON, M. D., Richmond, Va., Attending Urologist, St. Elizabeth's Hospital.

There is no one symptom of disease that causes more distress to the patient and is more frequently misunderstood by the physician than frequency of urination. It happens, therefore, that urinary antiseptics and sedatives often become the treatment of a symptom while some disease of the urinary tract or associated organs goes unrecognized and untreated. The fact that practically all diseases of the urinary tract produce some frequency of voiding demands that we confine our attention to those conditions in which irritability of the bladder is the most pronounced symptom, especially those conditions without characteristic pain or evidence of pathology in the urine. It is in such cases that the cause for frequent urination is apt to be overlooked unless a careful cystoscopic study is made.

An application of the knowledge that frequency of voiding, either with or without pain, is often a symptom of diseases of the ureters and urethra, and that lesions may exist in the bladder without pus or blood in the urine, would go far to curb empiricism in the treatment of irritable bladders. If we could realize that cystitis with few exceptions is a secondary process, the result of some obstructive lesion, or of infection primary in the kidney, we would not continue to use only antiseptics and irrigations but would locate and treat the cause.

A small number of these irritable bladders are due to reflex irritation from pelvic disease, such as small tumors, malposition of the uterus, or tubal inflammation. Diseases of the anus and rectum also occasionally cause bladder irritation, but these same conditions so frequently exist without bladder disturbance that they should never be set down as the causative agent until a thorough study of the urological organs has eliminated local disease.

I wish particularly to call attention to localized panmural cystitis or Hunner's elusive ulcer. The lesion occurs in the mobile part of the bladder, usually high in the vertex, causing constant discomfort to the patient but usually with no alteration in the character of the urine. The ulcer is insignificant in appearance and easily overlooked if the possibility of the condition is not borne in mind. Through the cystoscope the lesion appears as an erythematous patch, usually sharply marked, but in some cases shading off into the normal mucous membrane (Fig. 1). In the center of the area there usually appears one or more superficial ulcerations. Hunner states that he has never seen them covered with necrotic material or urinary salts, and has never seen any suggestion of malignancy—although in some instances the disease has persisted for years.

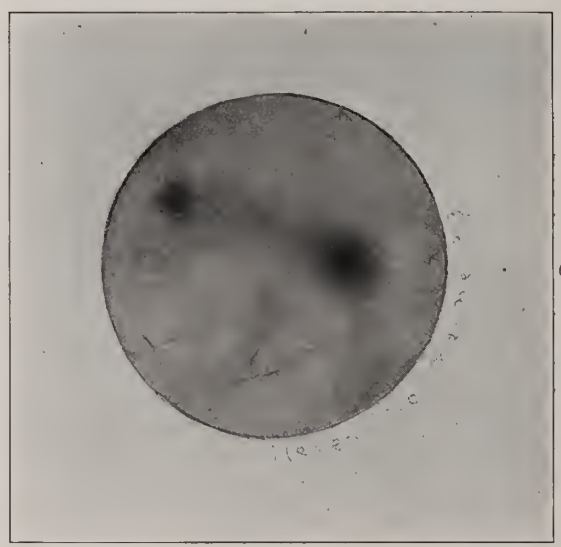


Fig. 1.—Cystoscopic view of Hunner's ulcer. In this case there were two sharply marked erythematous areas about an inch apart.

At operation the ulcer appears much more clearly defined than when seen through the cystoscope. The entire bladder wall is involved, and the location of the ulcer can often be determined before the bladder is opened by thickening of the bladder wall and adhesions

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

to the prevesical tissues. When the bladder is opened the ulcer appears as a sharply circumscribed, deeply congested area, often covered with fibrin deposits and coagulated blood (Fig. 2). Under the microscope it presents the picture of an inflammatory process of long standing. The ulcer-bearing area shows an incomplete loss of epithelium, the principal lesion being sub-epithelial. In the sub-mucosa

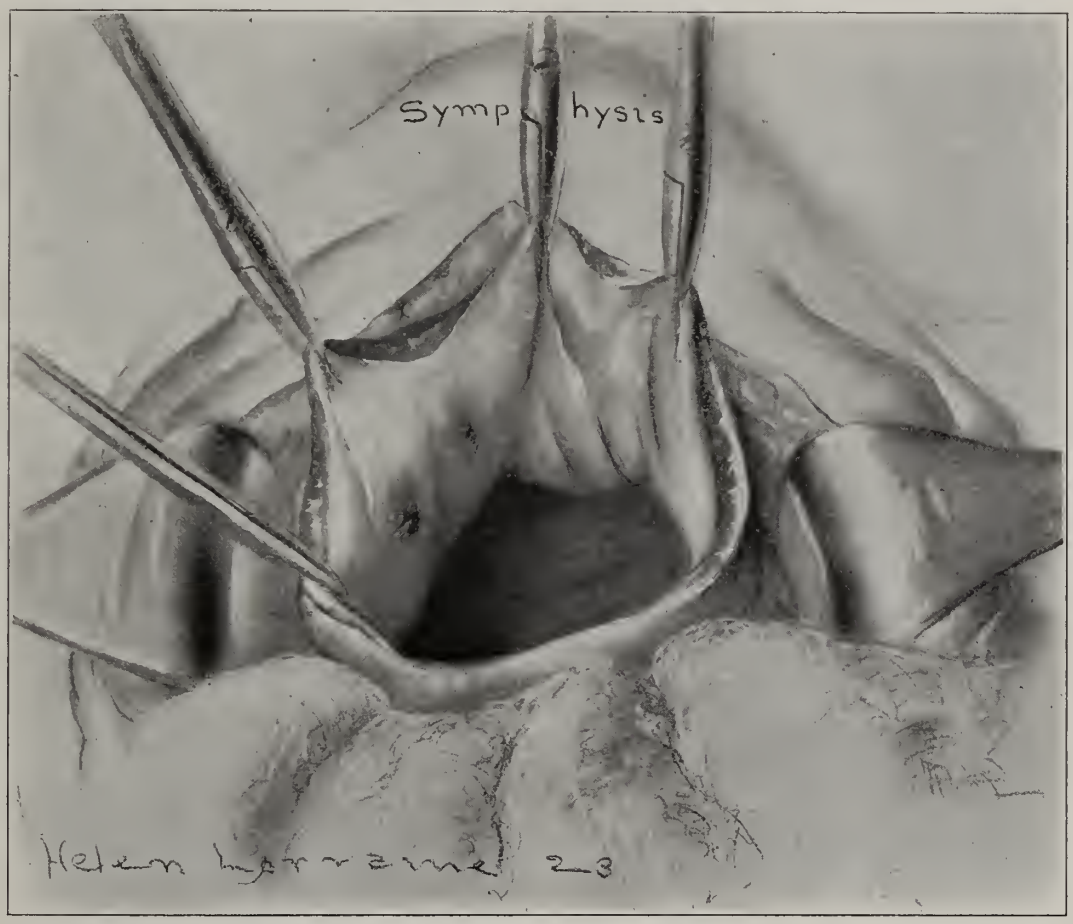


Fig. 2.—Bladder, opened suprapubically, showing two clearly defined ulcers on the anterior wall of the bladder.

are newly formed blood vessels packed with red blood cells. Round cell infiltration interspersed with newly formed connective tissue cells is seen throughout the sub-mucosa and in places extending into the muscular layer.

The urine is practically always sterile and there is very rarely any chemical or microscopical change except, in some instances, an occasional red blood cell or leucocyte. Hunner is inclined to think that the condition has some relation to foci of infection. This opinion seems to be borne out by the experimental work of Meisser and Bumpas, of the Mayo Clinic, who injected cultures of organisms obtained from the teeth and tonsils of patients suffering with ulcers of the bladder into the blood streams of nineteen rabbits and recovered them from the urological tract of sixteen, thirteen of which had lesions of the urinary bladder.

Of four patients whom I have treated for elusive ulcer of the bladder, three had had previous operations on the pelvic organs with the hope of relieving irritable bladders. Three of these four patients are now well, two following resection of the diseased portion of the bladder, and the other following fulguration and instillations of silver nitrate. One patient with a very large ulcer who has refused operation, is improving with instillations of silver nitrate. It is important in the treatment of these cases to eradicate every possible focus of infection.

Case Reports

Mrs. F. B. S., aged forty-eight, was admitted to St. Elizabeth's Hospital, March 12, 1923, complaining of constant desire to void and burning and aching in the bladder. About ten years ago the patient noticed that she was voiding more frequently, and that there was in the region of the bladder some slight pain which was constant, with no relation to urination. Both pain and frequency gradually became worse until the patient had very little control over the bladder.

About six years ago she had an anterior suspension of the uterus, which gave some relief for several months, when the discomfort returned as before. Two years ago she had an operation on the bladder, the nature of which she does not know. Since the operation her symptoms have been worse. Two weeks before entering the hospital the pain became much worse as a constant dull ache in the region of the bladder and burning in the urethra during and following urination. At the time of entering the hospital the patient was almost incontinent, voiding about every ten or fifteen minutes. There was no history of pyuria or hematuria.

The patient has had two children—the first still-born and the other living and well. She had the usual diseases of childhood, and influenza in 1919. She has suffered for the past ten or fifteen years with occasional headaches and a mild bronchitis.

Physical examination showed a well developed and well nourished woman. Several teeth were missing and there was evidence of considerable dental work on those remaining, which seemed to be in fairly good condition. Otherwise, the physical examination was negative.

The blood pressure was 140 systolic and 80 diastolic. The Wassermann was negative. The blood count was normal. The urine contained a trace of albumin and a few leucocytes.

Cystoscopic Examination: The bladder would only hold about four ounces of urine, which caused considerable discomfort. The bladder mucosa seemed practically normal at the base. Both ureteral orifices appeared normal. There was some congestion near the trigone. High up in the anterior wall of the bladder near the vertex and slightly to the left of the midline was a small deeply congested area about one-quarter inch in diameter. An inch from this and to the left was another similar area with a small streak of mucus extending downward and backward. These areas were fairly sharply marked. The bladder mucosa in this region appeared practically normal. (Fig. 1).

The patient was operated upon March 13th under gas and ether anesthesia. An incision was made from the pubis to about half-way to the umbilicus. The scar of the previous operation was excised and the incision extended downward toward the bladder. Previous pelvic operations caused the operation to be very difficult, as considerable scar tissue had to be gone through before the bladder was reached. The anterior and superior walls of the bladder were dissected free from the surrounding tissues. While dissecting the scar tissue away from the vertex of the bladder, a small opening was made in the bladder. This opening was enlarged transversely and the bladder held open, showing two small ulcers on the upper anterior wall of the bladder about one inch apart (Fig. 2). This portion of the bladder wall including the two ulcers was excised with scissors. The bladder was closed with two layers of 00 tanned catgut. Two cigarette drains were carried down on each side of the bladder, and the abdominal wound was closed with interrupted sutures of silk-worm-gut. An in-dwelling catheter was left in the urethra for drainage and immobilization.

The specimen consisted of a portion of the bladder wall about one and one-half inches by one inch. This included the two ulcers about an inch apart, each about one-eighth of an inch in diameter.

The patient made an uneventful recovery and when leaving the hospital could retain three ounces of urine without discomfort. She is now entirely well.

Another interesting case of bladder ulcer is Mrs. J. S. S., age forty, who consulted me on May 3, 1923, complaining of discomfort in the region of the pelvis and frequency of urination. The urine contained a number of leucocytes and a small amount of albumin.

Cystoscopic examination showed bladder mucosa to be entirely normal with the exception of congestion of the internal sphincter, the trigone, and the region of the left ureteral orifice. There were two orifices on the left side, one normal in position and in appearance. Just below and to the mid-line of this, the ureteral papilla projected out in a little mound, on the side of which there was a small ulcera-

tion and considerable edema and congestion. At the lower extremity of the papilla there was a small pin-point opening which proved to be an accessory ureteral orifice (Fig. 3). Indigo carmin given intravenously appeared in five minutes from the right ureteral orifice and from the normal left ureteral orifice. About two minutes later a small jet of dye came from the accessory opening. Just before the jet of urine appeared, the area around the opening was seen to balloon out, showing that there was obstruction to the outflow. The small

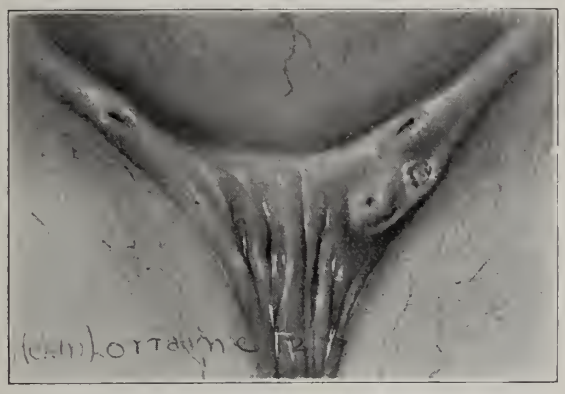


Fig. 3.—Simple ulcer of the bladder proximal to a stenosed accessory ureteral orifice. The ulcer healed spontaneously, following dilatation of the orifice.

orifice was catheterized with a number 4 filiform and bougies were inserted, gradually increasing the size to number 6. The pelves of the three ureters were irrigated with one per cent mercurochrome. The patient was seen at intervals of two weeks for three months and the kidney pelves were irrigated and the accessory ureter was gradually dilated up to number 11 French. At this time the patient was feeling very much better and the ulcer at the side of the ureteral orifice was entirely well.

An interesting feature of this case is the fact that the ulcer healed promptly when put at rest by dilating the stenosed ureteral orifice.

Chronic urethritis is a frequent cause of bladder irritation in women, the urine often being entirely negative, although usually there are a few leucocytes. On examination there may be no external evidence of disease, or the mucous membrane may protrude in redundant folds, congested, and tender to touch (Fig. 4). In passing a sound or speculum, there is marked tenderness and more resistance to the passage of the instrument than is noticed in the normal urethra. The mucous membrane, deeply congested, pouts into the end of the speculum and bleeds easily. The inflammatory process may extend into the trigone, giving it a granular appearance with congestion and distention of the blood vessels (Fig. 5). There may be bullous edema of the trigone, and occasionally small translucent vesicles situated along the blood vessels over the entire bladder surface—a vesicular cystitis.

Some of these cases respond readily to applications of ten per cent silver nitrate to the trigone and urethra; others clear up only after focal infections have been eliminated.

Fig. 4.—Protrusion of the mucous membrane in chronic urethritis.

Case Reports

Mrs. J. B., age fifty, consulted me November 9, 1923, complaining of marked frequency of urination existing over a period of five or six years. There was also slight discomfort in the region of the bladder when the patient was on her feet. The urine contained a few red blood cells and an occasional leucocyte. The mucosa of the urethra protruded slightly and was pale and granular in appearance. There was a sense of resistance in the urethra as the cystoscope passed. Cystoscopic examination showed the bladder mucosa normal throughout,

with the exception of the trigone, which was studded with minute granulations. The blood vessels of the trigone stood out more prominently than iormal (Fig. 5). Both ureteral

Fig. 5—Chronic trigonitis. Note the coarse granular appearance and dilated blood vessels.

orifices appeared normal and the kidney function was normal. Specimens of urine from both kidneys were normal. The trigone and urethra were painted with ten per cent silver nitrate.

General examination showed the patient to have several bad teeth with some pyorrhea. Following the extraction of these teeth, her bladder symptoms were very much worse for a few days, after which she began to improve. The patient was given daily instillations of ten per cent argyrol until December 15th, when examination showed very marked improvement in the appearance of trigone and urethra, and the patient expressed herself as feeling better than she had for several years. When heard from six months later, she was very much improved.

Another interesting case is Mrs. W. D. T., age sixty, who came September 25, 1924, complaining of frequency and burning on urination for the past six months. The patient has had infected teeth and tonsils removed, and has had an operation for suspension of the uterus and repair of the perineum; otherwise, the past history is uninteresting. Six months ago she began to have trouble with her bladder, getting up several times at night to void and experiencing considerable pain during the act. At two different times during this period she has been confined to the bed and treated with bladder irrigations and sedatives. There was at first considerable pus in the urine, which had practically cleared up. There was no relief of the bladder discomfort.

Examination showed the mucosa of the urethra to be protruding, very deeply congested and somewhat granular (Fig. 4). There was considerable pain on passing the cystoscope. The bladder capacity was normal and the mucosa mildly congested throughout. The blood vessels were a little more prominent than normal, especially over the trigone. Situated along the course of the blood vessels, but apparently not directly connected with them, were many vesicles about the size of small shot, some single, others in clusters of three or four. Those on the trigone and around the internal sphincter were larger, giving more the appearance of bullous edema. The urine contained an occasional leucocyte. Both ureteral orifices were normal in appearance, and indigo carmin given intravenously appeared from both kidneys in about six minutes.

Fig. 6.—The floor of the posterior urethra showing openings of ducts from the prostate and seminal vesicles.

The redundant mucosa was removed with the electric cautery and ten per cent silver nitrate applied to the trigone and urethra. Three weeks following this treatment the patient showed considerable improvement, the bladder holding eight ounces without discomfort, and

the patient having to void only twice during the night.

In the male, chronic inflammation of the verumontanum causes marked frequency of urination, often accompanied by intense pain. The condition is usually the result of infection in the prostate and seminal vesicles. Being constantly bathed by the secretions of these organs the posterior urethra cannot escape contamination when they become infected (Fig. 6). The urine is often entirely negative.

The verumontanum is congested and granular and often enlarged.

When the prostate and vesicles are massaged, the secretion contains pus in varying amounts, sometimes with complete absence of normal prostatic contents. Complete relief is given these patients by applying twenty per cent silver nitrate to the verumontanum and massaging the prostate and vesicles.

Frequency of urination is the earliest and most constant symptom of prostatic hypertrophy. It makes its appearance when there are only a few cubic centimeters of residual urine, and persists until retention demands relief.

The greatest need in prostatic surgery is early recogition of the disease. It is unreasonable to expect further reduction in the morbidity and mortality of prostatic cases until we have learned to recognize the early signs of the disease and institute treatment before the patient's health has been broken by the inroads of back pressure and infection.

Case Reports

Mr. R. B. M., age fifty-six, was admitted to St. Elizabeth's Hospital, July 10, 1924, complaining of painful and frequent urination existing over a period of two years. In the last few months there had been some slight difficulty in starting the stream. The urine contained a trace of albumin and an occasional leucocyte.

Cystoscopic examination showed the bladder mucosa to be deeply congested throughout and the inter-ureteral ridge slightly more pronounced than normal. Both ureteral orifices were normal in appearance. The bladder was moderately trabeculated, and there were three small shallow saccules on the right lateral wall of the bladder, and one just behind the left ureteral orifice. The prostate was moderately enlarged. The posterior lobe, about the size of the thumb, projected into the bladder; the lateral lobes, slightly enlarged, met the posterior lobe at an angle on either side. There was apparently no encroachment on the posterior urethra. The patient had a residual urine of three ounces.

The prostate was removed through a suprapubic incision. The patient made an uneventful recovery and left the hospital well on August 13th.

The character of a symptom is rarely an index of the seriousness of the disease. The pain and bladder spasm resulting from stone in the bladder does not differ from that caused by carcinoma of the bladder. A patient recently treated for infection of the verumontanum and prostate, sent his neighbor complaining of the same symptoms. The neighbor was suffering with a large infected hydronephrosis with secondary infection of the bladder. He had no inconvenience from the hydronephrosis until his bladder became infected. The same symptoms led to the discovery of a relatively mild condition in one and a destroyed kidney in the other. The palliation of symptoms with sedatives and irrigations may, on the one hand, merely result in unnecessary suffering and a delay in cure, while, on the other, it may permit the destruction of an organ and imperil the patient's life.

Frequency of urination is more than a symptom of some disease of the genito-urinary system. It is a signal of danger, may be slight, may be grave, but demanding a thorough investigation before treatment is instituted. Only in this way can we obviate unnecessary suffering and aid in the conservation of the health of our patients.

210 *Medical Arts Building.*

A REVIEW OF THREE HUNDRED CASES OF KIDNEY INFECTION.*

By W. CALHOUN STIRLING, M. D., F. A. C. S.,
Associate in Genito-Urinary Surgery, Georgetown University Hospital, Washington, D. C.

The subject of kidney infections is such a large one that this discussion will be limited to the etiology and treatment. The symptoms, diagnosis and pathology have been rehashed thoroughly and need no repetition at this time. This study is based on a series of three hundred kidney cases treated by the writer.

Disease of the kidney has been ascribed chiefly to two conditions, the first being interference with drainage, the second, the result of

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

an over-supply of bacteria to the kidney. Bugbee says: "Too much stress cannot be laid upon the factor of the supply of toxins and bacteria to the kidney, and it should not be studied or treated until a thorough knowledge of the patient's general condition, as regards focal infection, is studied." We are all familiar with the remarkable power the kidney possesses of responding to overwork, as long as drainage is adequate and the supply of toxins not too great.

The outstanding feature in this study is the large number of patients who have been subjected to one or more operative procedures, without relief of their pain and other symptoms. Over thirty per cent of this series had had an abdominal operation without relief. The pre-operative diagnosis in this list of operative errors is given in the order of frequency: 1, appendicitis; 2, ovarian disorders; 3, gall-bladder disease; 4, malposition of the uterus; and 5, abdominal adhesions.

Nichols says: "Over thirty per cent of a series of hydronephrosis cases treated by him had either an appendectomy or gall-bladder operation without benefit." Cabot, in a report of one hundred and fifty-three cases of stone in the urinary tract, found that sixteen per cent of the cases had had an operation for some other condition without relief. Numerous other writers might be quoted to bear out the contention that many cases are being operated on for abdominal conditions, when the pathology is in the kidney.

It rests with urologists to aid in eliminating this large per cent of error in surgical diagnosis, and to point out the necessity of more careful collaboration of the general surgeon and internist with the urologist. Such a high per cent of error in pre-operative diagnosis, without a careful urinary examination, is inexcusable. With the exact methods of diagnosis we now possess, it is quite possible to eliminate the urinary tract before operative measures are contemplated. Caulk, Braasch, and others urge the necessity of careful cystoscopic examination in all cases presenting vague abdominal symptoms with pain. Pain produced by obstruction of the ureter is often confused with abdominal conditions, and often requires a careful urological examination to differentiate them. In cases where the urinary tract is suspected and the urine negative, a pyelogram will often clear up the diagnosis and may reveal a ureteral kink, a ptosed kidney, a beginning hydronephrosis, an ureteral stricture, etc. Infection of the kidney is very prone to cause dilatation of the pelvis and ureter, with subsequent elongation, producing sagging of the kidney with stasis of urine.

Etiology

The cause of renal infections may be divided into two groups: 1, Congenital, and 2, Acquired.

Under congenital we have: (a) malposition, i. e. ptosed and pelvic kidneys; (b) aberrant blood vessels interfering with drainage; (c) horseshoe kidney and other abnormal fusions; (d) ureteral anomalies. That *congenital* lesions are not infrequently seen is evidenced by the reports of various authors. Braasch reports 144 cases of duplication of the ureter, and is of the opinion that such anomalies are prone to develop into pathological and surgical conditions, hydronephrosis being the commonest complication. Further refinements in diagnosis will doubtless reveal many more such conditions.

The *acquired* etiological factors are the most frequently seen, and may be divided into predisposing and primary. The former includes the conditions which interfere with drainage, such as stone in the ureter, stricture, trauma, pressure from an adjoining viscus, excessive functions, cystocele in women, etc. The primary causes play a large role in the etiology of kidney infections, and are usually a metastatic involvement from foci located elsewhere, such as the tonsils, teeth, sinuses, intestinal tract, seminal vesicles, etc.

That bacteria may pass through a healthy kidney without damage is a well established fact, so, in order for the kidney to become infected, one of two things, or a combination of two, must occur. The first is interference with drainage, illustrated by the pyelonephritis of pregnancy, and that seen accompanying prostatic hypertrophy. It is in this group that the colon bacillus is so frequently found, occurring in as many as ninety per cent of the cases. The second group include cases where abnormalities of the urinary tract cannot be demonstrated, and are probably due to bacteria entering the kidney from a focus of infection. That various strains of the cocci group have the power of elective localization in the kidneys is shown by the work of Rosenow, Bumpus, and others. Rosenow was able to produce renal calculi in eighty-seven per

cent of a series of animals with organisms isolated from patients with nephrolithiasis. This was done under careful control and is most conclusive. Bumpus is of the opinion that streptococci are the primary bacteria found in these hematogenous infections, paving the way for the urinary scavengers, the colon bacilli, to step in and produce chronic secondary infection. Cabot and Crabtree emphasize the role the colon bacillus plays, pointing out the many fallacies attending infections by other devious channels. It is clearly shown that ascending infections along the ureter may, and do, occur, especially in the presence of some ureteral obstruction. Many writers have contended that bacteria pass directly from the colon to the kidney by the lymphatics, but, as Cabot says, in view of the present findings, they are arguing on highly insecure grounds, and Bugbee is also of this opinion. Regurgitation has been frequently observed under the fluoroscope, and doubtless accounts for the majority of ascending infections. It has been shown that regurgitation occurs in the ureter, causing the bladder contents to be propelled into the kidney. Kretschmer, using a solution opaque to the X-ray, observed that solutions enter the pelvis in normal as well as diseased bladders, as a result of regurgitation. I have seen several cases in which the kidney, ureter and bladder were a large dilated sac, the ureter being greatly distended with no evidence of closure at the ureteral orifice. Whether the hydroureter was a result of the infection, or the infection a result of the dilatation, I was not able to determine, though the hydronephrosis and pyelonephritis seen with prostatic adenoma, leads one to believe the dilatation is the primary pathology, i. e., a result of obstruction. A predisposing factor frequently seen in this series was cystocele with resultant residual urine in the bladder, occurring in parturient women. This pathological process has proven to be quite a factor in infections of the female urinary tract, and occurs also in pregnancy.

Eisendrath points out that infections of the ascending type take place through the periureteral lymphatics and cites experiments he has done on aimals to support his theory. In view of the segmental lymph drainage of the ureter, emptying chiefly in the sacral lymph nodes, it is highly improbable that this occurs. Judd calls attention to the above fact. That organisms may enter the lymphatics and reach the kidney through the blood stream has been frequently observed in urinary trauma, and probably accounts for the majority of the infections other than hematogenous. Blood cultures made following trauma to the urinary tract have repeatedly demonstrated colon bacillus in pure cultures. Infections of the colon probably reach the kidney by this route. Kretschmer, in a report of two hundred cases, found gastro-intestinal lesions in thirty per cent of the series. A syndrome noticed quite frequently is infection of the kidneys occurring as a result of or in conjunction with pus conditions in the abdomen. In several cases coming in the hospital for appendectomy, where the diagnosis was confirmed at operation, pus and red blood cells have been found in the urine. This has also occurred during convalescence following operations. It has been termed by me "kidney-appendix syndrome." Whether the kidney involvement is due to a bacteremia or direct extension has not been determined. It presents a troublesome and frequently seen complication, often puzzling in symptomatology with marked hyperpyrexia and is probably the result of an overwhelming dose of bacteria circulating in the blood stream. Crabtree, in a report of pyelitis of pregnancy, found some degree of urinary stasis in many of his cases, with rather a large amount of residual urine, varying from 30 to 480 c.c. in quantity. He says there is some degree of hydronephrosis, with or without infection, during gestation, often due to kinking of the ureter. This was found to be true in many of my cases, the obstruction occurring just below the uretero-pelvic junction. Pyelitis of pregnancy has caused a great deal of discussion, as to the primary cause of this most unfortunate condition. I have found in most of these cases, where a pyelogram was made, that some form of obstruction has been found in the ureter. Five cases had a definite kinking of the ureter with hydronephrosis, as a result of the foetal parts making pressure on the ureter. In many others, the obstruction was found low in the ureter, as a result of ureteral stricture, with a slowing up of the urinary stream. Hunner has pointed out the seriousness of these ureteral conditions in producing renal stasis with pain, and has found a large per cent of bilateral strictures in his cases. I have seen quite a number of ureteral strictures demonstrated by a pyelogram and wax bulb. A combination of these two procedures, in my opinion, is necessary to correctly diagnose ureteral stricture.

A plain ureteral catheter will not show them. That dilatation of the ureter is of frequent occurrence is evidenced by the work of Hirsch, in which he found thirty per cent of a series of necropsies in pregnant women has some form of dilatation of the ureter and renal pelvis.

A combination of renal stasis with an oversupply of bacteria has been found the causative agent in this report in cases other than those caused by the tubercle bacillus. That a primary infection may occur as a result of bacteria having a predilection for kidney tissue has also been seen in quite a number of these cases. In those cases having focal infections in the oral cavity, refusing to have the focus eradicated, the infection persisted until the cause was removed, showing that it is necessary to clear up the tonsils and teeth to effect a permanent cure.

Treatment

The treatment of kidney infections may be divided into three groups, depending on the pathology present. In the first group, where the infection is acute and fulminating—the so-called pyonephroses—early removal is indicated. The kidney is functionless and may serve as a focus to involve the other kidney, so that an early nephrectomy is the procedure of choice. In the second group, especially those caused by the streptococcus, with only partial loss of function and the patient's general condition good, rest in bed, restricted diet, forced fluids and either the oral or intravenous administration of gentian-violet or mercurochrome is of benefit. Young reports a number of cases where these dyes have acted as life savers. These antiseptics may fulfill a great and long felt need for some harmless but potent antiseptic, which may be given intravenously or even by mouth. In a recent report Young calls attention to the marked bactericidal action mercurochrome has when given by mouth. Both the gastro-intestinal and urinary tract share in the germicidal action of this drug.

In one patient recently treated, the patient refused cystoscopic treatment, so mercurochrome was given intravenously every second day. The urine cleared up, and the patient made a rapid recovery. Several other cases responded in a similar manner to its use.

In the third group, the chronic pyelonephritides, expectant treatment has been disappointing. Drainage is the prime essential and should be established just as soon as the acute stage has subsided. Dilatation of the ureter with pelvic lavage, using silver nitrate in one per cent solution is most beneficial. Personally, it is believed that dilatation can be done with less reaction, using graduated ureteral bougies, up to 11 French. If the infection is the result of some predisposing factor, i. e., lack of drainage, this must be remedied before a cure can be expected.

It has been shown that ninety per cent of those reaching adult life have septic mouths, so our chief effort should be directed to the teeth and tonsils as a source of infection. These were found to be infected in over seventy per cent of this group, the other thirty per cent being possibly from the sinuses, colon, etc. The teeth should be X-rayed and the tonsils removed in all cases presenting urinary symptoms. This may sound radical, but so many cases have been seen in which the kidney infection persisted until the foci were removed, and then cleared up, that I feel justified in making this statement.

Pyelitis of pregnancy is a very difficult condition to cure, and requires drainage, often over long periods of time. Continuous pelvic lavage, using a two-way catheter, has proven of value where simple lavage and drainage was ineffective. In pronouncing a patient cured, it is very necessary to have the urine free of bacteria as well as pus. I have seen cases with no pus in the urine, but after carefully centrifuging the urine and examining the stained sediment, large numbers of bacteria were seen. Whether or not formaldehyde liberating drugs really exert any bactericidal action on organisms at the kidney level, still remains in doubt. If used, they should be given often and in rather large doses, first insuring a high acidity of the urine by means of acid-sodium phosphate. Leonard is of the opinion that hexyl resorcinol possesses all the requirements for an ideal internal urinary antiseptic.

In passing, it may be stated that both autogenous and stock vaccines were used in the treatment of quite a number of these patients, but, as far as could be ascertained, no brilliant results were obtained by their use. They may possibly aid in increasing the patient's opsonic index.

Three cases have required kidney suspension, as the kidney was found in the lower lumbar

region in each case. Pyelograms made some weeks after operation showed the kidney to be well in place. It has been necessary to remove but two kidneys, one being an acute fulminating streptococcus pyonephrosis with no excretion of 'thalein in thirty minutes. A section was made of one kidney by Dr. J. B. Bullitt, who said, "The kidney shows signs of an acutely superimposed infection on a chronic nephritis. The pelvis was filled with a grayish membrane with necrosis of the pelvic mucosa. Throughout the kidney substance were many small punctate areas of necrosis." The other kidney was studded with small abscesses involving much renal tissue. One other septic kidney required drainage, but recovered quickly when drainage was established. No deaths occurred in this series.

BIBLIOGRAPHY

Braasch, W. F., and Scholl, A. J.: Duplication of Renal Pelvis and Ureter, *S. G. & O.* 1922, Vol. XXXV, pp. 401.

Bugbee, H. G.: Ureteral Occlusion, Its Relation to Renal Lesions. *Surg., Gyn. & Obst.* 1919, pp. 1-7.

Cabot, Hugh: The Role of the Colon Bacillus In Infections of the Kidney. *N. Y. State Jour. Med.*, Feb., 1921.

Cabot, Hugh, and Crabtree, E. G.: The Etiology and Pathology of Non-Tuberculous Renal Infections. *Surg., Gyn. & Obst.* Nov., 1916, pp. 495-537.

Crabtree, E. G., and Shedden, W. M.: The Sagging Kidney as a Factor in the Persistence of Colon Bacillus Infection. *Jour. Urology.* Vol. VI, No. 3, Sept., 1921.

Crabtree, E. G.: Present Conception of Colon Pyelitis as Regards Treatment. *Boston Med. & Surg. Jour.* Vol. 186, No. 16, pp. 530-532. April, 1922.

Cabot, Hugh: Errors in Diagnosis and Ureteral Calculus. *Surg., Gyn. & Obst.* Oct., 1915, pp. 403-6.

Danforth, W. C.: Pyelitis of Pregnancy, with Especial Reference to its Etiology. *Surg., Gyn. & Obst.* XXII, No. 6, June, 1916, pp. 723.

Deaver, J. B.: Early Diagnosis of the More Common Upper Abdominal Conditions. *Boston Med. & Surg. Jour.*, June, 1923.

Felty, A. R., and Keefer, C. S.: Bacillus Coli Sepsis, Clinical Study of 28 Cases of Blood Stream Infection by the Colon Bacillus. *J. A. M. A.*, May, 1924, Vol. 182, No. 18.

Falls, F. H.: A Contribution to the Study of Pyelitis of Pregnancy. *J. A. M. A.*, Vol. 81, No. 19, Nov. 10, 1923.

Geraghty, J. T.: The Treatment of Chronic Pyelitis. *J. A. M. A.*, Vol. LXIII, pp. 2211-2213., Dec. 19, 1914.

Hinman, Frank: The Cystoscopic Study of Urological Conditions in Children. *Am. Jour. Dis. Children*, May, 1919, Vol. XVII, pp. 305-310.

Helmholtz, H. F.: Ascending Infection of Urinary Tract. *Arch. Pediat.*, 35:375, 1918.

Kretschmer, H. L.: Pyelitis of Pregnancy. *J. A. M. A.*, Vol. 81, No. 19, Nov. 10, 1923.

Leonard, V.: Hexyl Resorcinol. The Development and Clinical Application of a Synthetic Compound Possessing the Experimental Requirements of an Ideal Internal Urinary Antiseptic. *J. Urol.* Vol. XII, pp. 585-610.

Moore, Neil: Non-Tuberculous Infections of the Kidney. *Jour. Mo. State Med. Assn.* Vol. XIX, pp. 104, March, 1922.

Stevens, W. E.: Diagnosis and Treatment in Pathological Conditions of Urinary Tract in Children. *J. A. M. A.*, Vol. 77, pp. 1081-1085, Oct., 1921.

Nichols, B. H.: Hydronephrosis. *Amer. Jour. Roent. & Radium Ther.*, Vol. XI, No. 1, pp. 25-35, 1924.

Hirsch, quoted by Francke: *Ergebn. d. Chir. U. Orthop.* 7, 671, 1913.

Stirling, W. Calhoun: Pyelonephritis. *Jour. Urology.* 1923.

Idem: Observations in One Hundred and Seventy-five Cases Pyelonephritis: *Surg., Gyn. Obst.* December, 1923, pp. 751-755.

Young, H. H.: Urinary Antiseptics. *Jour Urology.* Vol. XI, No. 1, Jan., 1924.

Young, H. H., Scott, W. W., and Hill, J. H.: The Use of Mercurochrome by Mouth as a Urinary and Intestinal Antiseptic. *Jour. Urology.* Vol. XII, No. 3, September, 1924.

1720 *Que Street, Northwest.*

SOME REMARKS ON UNILATERAL HYDRONEPHROSIS.*

By JOHN H. NEFF, M. D., University, Va.

Hydronephrosis, in common with other surgical conditions of the ureter and kidney, frequently presents a most deceptive symptomatology. By the time of a late diagnosis, renal destruction may be far advanced and the opportunity for conservative surgery may thus have passed; the more regrettable because the therapeutic problem in early hydronephrosis is so essentially one of mechanics and, at least theoretically, should thereby be the easier for surgical solution. Such facts, we feel, warrant frequent discussion of hydronephrosis and give value to case analyses.

We propose to discuss some of the current views concerning unilateral hydronephrosis in the light of our own experience. The unilateral type is of most interest both because it far outnumbers the bilateral form and because it more often allows curative rather than palliative treatment.

Intermittency or incompleteness are commonly considered the characteristics of all ureteral obstructions that produce hydronephrosis. To cause much pelvic dilatation there must be periods of more or less free drainage even though at times the obstruction may be complete for hours or days. Total permanent ureteral occlusion in human beings is thought shortly to result in renal atrophy with but little preceding dilatation.

In contrast to this latter view, Hinman and

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

Lee-Brown report in animals the almost invariable development of a large hydronephrosis after ureteral ligation. This they explain as due to continued urine secretion made possible by a process which they call "pyelo-venous back-flow"—namely, that with an intrapelvic pressure short of renal secretory pressure, the pelvic contents gain entrance into the venous spaces at the bases of the pyramids and hence into the general circulation and, further, that this communication, once established, the "back-flow" will continue at gradually decreasing pressures. If this observation be correct and if it be true that ureteral ligation in human beings does not cause hydronephrosis, it would seem that "back-flow" does not occur in human beings under conditions analogous to its operation in experimental animals. Nevertheless, the experimental work of Hinman and Lee-Brown is so convincing that one feels their assumption of the operation of pyelo-venous drainage in humans is justifiable. Certainly some type of re-absorption is required to explain the progressive dilatation during a period of prolonged ureteral closure, because else there would very soon be a balance between the intrapelvic and secretory pressures and, therefore, cessation of secretion.

There are so many conditions, congenital and acquired, within or without the ureter, which may obstruct the duct that even an approximately complete list of reported forms would be lengthy. Modern facilites for thorough and graphic study of the kidneys and ureters usually make possible their demonstration and accurate classification prior to treatment. A congenital defect is found to be the responsible factor with fair frequency. Variations in the development of the kidneys and ureters may result in ureteral duplication, malposition of the ureteral orifices, ureteral valves or strictures, incomplete ascent or rotation of the kidney, horse-shoe kidneys and so on, in any of which inadequate pelvic drainage may be involved. Aberrant vessels going to the lower pole of the kidney, and so making pressure upon the ureter, fall in the congenital category. There is not entire unanimity of opinion as to how often such vessels, even when present, are of etiological importance. Kelly points out that in many of the large hydronephroses the vessels are drawn out of place and so seem to obstruct the ureter when primarily they have had no such effect. He believes that many times it is not aberrant vessels alone which are causative, but these combined with abnormal renal mobility. Such supernumerary vessels were the predominant factor in the obstruction in one of our cases. Other causative congenital defects in our series were horse-shoe kidney twice, ureteral diverticulum once, stricture of the ureter once.

The valve-like obstruction at the pelvo-ureteral juncture produced by the duct leaving the pelvis at an acute angle or by the so-called high implantation of the ureter into the pelvis, may represent developmental variations and so deserve congenital classification. In many cases where such deformity is observed, the kidney is also quite low and the question arises whether the seeming high ureteral implantation is not really secondary to the descent of the kidney and dilatation of the pelvis. The supports for the kidney and upper portion of the ureter are quite different: ptosis of the kidney does not necessarily imply ptosis of the adjacent ureteral segment which, by maintaining a relatively normal position, would then produce this very type of obstruction.

It can, of course, be equally argued that the renal ptosis may be a secondary manifestation and due to the increased weight of the hydronephrotic mass. No doubt the sequence of events may be either way. While we incline to the view that ptosis is more often the prime factor, we have seen several cases where the kidneys were in high normal position and the obstruction clearly of the valve type at the pelvo-ureteral junction. In our total series of twenty-six cases, this type of obstruction—with or without ptosis—has occurred eleven times and has so proven to be much the most common etiological factor.

Numerous statistical studies of the etiology of hydronephrosis show acquired obstructions much outnumber congenital forms. In our own experience the proportion has been about as three to one if the major part of the pelvo-ureteral juncture obstructions are included in the acquired group.

Frankly of the acquired type, we have pressure upon the ureter by various pelvic, abdominal or retroperitoneal tumors, occlusion of the duct by stone, tumors or strictures, blocking of greater or less degree produced by ureteral twists or kinks. We have observed causative extra-ureteral pressure twice, once by the pelvic recurrence of a carcinoma of the cervix, once by a perirenal cyst of undetermined origin. The obstruction was made by calculi in two of

the series and both times the stones were in the pelvis. A moderate amount of pelvic dilatation is the practically constant finding where calculi have been obstructive for any period of time. We have included in the series under discussion only the instances of very marked dilatation and with a slight infection. Pyonephrosis has been, on this basis of division, a very much more frequent result of calculi than hydronephrosis.

Of the remaining eight cases, four presented ureteral strictures and four showed kinks or twists of the ureter. It is frequently not clear how much importance should be attached to the latter in the etiology of hydronephrosis. So often they are merely evidence of lengthening of the ureter from some lower obstruction and hence are due to the same back pressure which produces the renal change. This we have seen on not a few occasions. In considering interference with free ureteral drainage, one, of course, always bears in mind the fact that the ureter functions, not passively, but by active peristalsis. Waves of peristalsis can be as effective around quite sharp curves as along the normal relatively straight course of the duct. Yet there is a definite group in which kinks are of primary importance. They are seen as very sharp angulations of the duct or in flat S-shaped twists.

While the various ureteral obstructions we have specifically mentioned by no means exhaust the possibilities, they fairly well exemplify the main general types.

The characteristic gross pathological picture of hydronephrosis is dilatation of the pelvis and calices with thinning out of the renal parenchyma. If the obstruction is low, the ureter too has become dilated after an ineffective original hypertrophy. Braasch states that with a low ureteral obstruction the dilatation is predominantly in the calices, secondarily in the pelvis, while with a high obstruction the pelvis distends to a relatively greater degree than the calices. The increased intrapelvic pressure is exerted directly upon the secretory apparatus, thus interfering with tubular drainage and the intrarenal circulation, and results in final glomerular and tubular atrophy. Hinman and Lee-Brown believe that much of the parenchymal degeneration is ischemic, stating that an impeded intrinsic circulation is the intermediary factor between increased renal tension and destruction of the tubules and glomeruli. The infiltration and sclerosis of chronic inflammation play a destructive role where a not infrequent secondary infection has occurred. Exactly half of our cases were infected.

In reviewing the histories of our patients we have been forcibly impressed with the insidious manner in which hydronephrosis may develop. While a good majority of the cases had had rather characteristic Dietl's crises at one time or another, frequently over long periods, they suffered nothing more than a grumbling abdominal discomfort and this indefinitely localized. In one patient, seen during her first attack of pain, the kidney was nothing but a mere shell. Dilatation and gradual renal destruction obviously must have antedated the one painful attack for months at least. In two more advanced cases—both also infected—no history of any pain whatsoever could be obtained. The period of complaint prior to admission, in the twenty-four patients that did have pain in one degree or another, varied between a few days and thirty years.

Chronic gastro-intestinal symptoms may be more prominent in the patient's complaint than pain. Such manifestations are no doubt reflex or else evidence of a slight toxemia, possibly both in some instances. Bladder irritation has been relatively uncommon in our series unless there was some secondary infection. A third of the patients had a palpable mass when first seen and several, in whom we could feel none, had previously presented such according to the referring physicians.

With the modern facilities available for examination of the upper urinary tract, there is no reason why a palpable hydronephrosis should be mistaken for any other condition. Nor should errors be frequent in those cases where the pain is at all typical of renal colic or in patients with pus or blood in their urine whatever their pain may be like. Here we have imperative indications for thorough urological study. The thoughtful employment of ureteral catheters, pyelography and tests of kidney function will rarely lead one astray. In the small but not negligible group where there are only vague abdominal complaints, an early diagnosis depends on the awareness of the attending physician and urologist that hydronephrosis is one of the conditions that may be underlying.

The scope of this paper is not such as to allow a detailed account of the urologist's technique in demonstrating a hydronephrosis. Suf-

fice it to say that in the early cases—at the stage when accurate diagnosis is of greatest importance—the interpretation of pyelo-uretrograms is not always easy. Nice judgment may be required to distinguish between early dilatation and a large normal pelvis. Contrast with the opposite side is then helpful since the two pelves are almost invariably of the same size and type in a normal individual. Conclusions cannot be drawn from ureters and pelves incompletely filled, nor must a point of peristaltic contraction be mistaken for a stricture. And, as mentioned above, there is danger in attaching importance to a demonstrated kink or twist if the ureter below has not been shown to have a normal outline.

The treatment of unilateral hydronephrosis hinges upon the extent of kidney damage and the type of underlying obstruction. Obviously, for the far-advanced cases when the kidney has been thinned out to a mere shell, no operation short of a nephrectomy is worth while. In our series there were fifteen operations and ten of these were nephrectomies. A recent report from the Mayo Clinic states that 475 nephrectomies were required in the treatment of 503 cases of hydronephrosis. Such percentages are damning evidence of the late stage at which most patients submit themselves for operation.

In the early cases conservative measures are as clearly indicated as nephrectomy in the late ones. Here we have kidneys which have suffered only slight damage and which, granted free drainage, may function even as well as their normal mates. For these, the first essential is a very accurate diagnosis of the site and type of obstruction, and then relief of this by the simplest method possible. An operation of one kind or another is usually required. For example, in our own cases there were three plastic operations at the pelvo-ureteral juncture, one fixation of the kidney along with division of aberrant vessels, one ureteral diverticulectomy. It is worthy of mention that seven patients with early hydronephrosis refused to submit to an advised operation. In view of what has been said above, these may well turn up at some later date as candidates for nephrectomy. The early cases with ureteral strictures alone can frequently be handled by dilatation. We have now under observation a patient in whom we have been dilating not only a low stricture but also one at the pelvo-ureteral juncture. While there has been no decrease in pelvic capacity—between two and three ounces—the phthalein excretion has increased from one-half normal to normal and a rather heavy infection has entirely cleared up.

Unfortunately, in hydronephrosis there is a group of cases for which it is difficult to decide whether the kidney should come out, or whether conservation should be attempted in the hope that not only will a moderate function be retained, but that function will improve after adequate drainage is established. It is probably safe to say that the present day attitude in such circumstances is to give the kidney a chance even though a later nephrectomy may be required. This usually involves some form of plastic repair and often an additional nephropexy. Many of these procedures fail to secure the needed pelvic drainage. Of thirty-nine plastics at the Mayo Clinic, eleven had to be followed by nephrectomy. Quite recently, Hinman has taken the position that it is thoroughly futile to attempt preservation of a kidney much damaged by hydronephrotic changes when the opposite kidney has undergone even partial compensatory hypertrophy. Basing his views upon extensive experimental data, he states that even though the obstruction of such a kidney is entirely relieved the ultimate result will be disuse atrophy. This degenerative change he considers evidence of a lack of renal reserve power and, because of such lack, the kidney has been unable to meet the competition in work of its hypertrophic fellow. This is a new proposition in renal surgery. If it proves to be a correct one, cases of hydronephrosis will much more automatically divide themselves into groups justifying conservative measures on the one hand, and nephrectomy on the other. For the time being, however, we continue to advocate conservative surgery in these middle zone cases until there are further clinical studies corroborating Hinman's work.

References

Hinman, Frank: *Jour. Urology.* IX, 289, 1923.
Hinman and Lee-Brown: *Jour. A. M. A.*, Feb. 23, 1923.
Lee-Brown, R. K.: *Jour. Urology.* XII, 1, 1924.
Braasch, W. F.: Pyelography. 1915.
Kelly and Burnam: Diseases of the Kidneys, Ureters and Bladder. 1922.
Scholl and Judd: *Surg. Clin. N. Am.* IV, 425, 1924.

Discussion of Papers by Drs. Dodson, Stirling and Neff.

Dr. J. E. Rawls, *Suffolk*: These papers have been very interesting to me, and especially from the general surgeon's standpoint. The paper that I especially enjoyed was the one of Dr. W. C. Stirling, reviewing three hundred cases of kidney infection. I

was interested in the point Dr. Stirling brought out when he said the kidney was frequently a secondary infection. I think that is undoubtedly true. I remember a case I had ten years ago. The patient suffered very much with "indigestion." She was given treatment, which seemed to clear up this condition. About six months after this she developed a severe kidney infection, and suffered with this a long time. Frequently she would get relief partially. She consulted another for help and I didn't see her for several months, when one day, I met her on the street. She had gained considerably and was feeling well and happy. When I asked her the reason for her improvement, she said she had had her teeth X-rayed and most of them extracted, and had not had any trouble since. That was ten years ago and she is well and happy today. Dr. Stirling emphasized the fact of examining your patient, especially as to focal infection. If we do this thoroughly, we will be able to relieve a great number who suffer from kidney infection, and the general practitioner will do well to make closer examinations along the line of focal infection.

Dr. Edward H. Richardson, *Baltimore, Md.*: I have listened with a great deal of interest and profit to these papers. Of the number of points which they suggest for discussion, I have time to stress only three. And what I say is intended to apply only to women, since my urological work is confined to that sex.

Dr. Dodson's paper reviewed admirably and with excellent pictorial reproductions a variety of bladder lesions, the initial symptom in each one of which was frequency of urination. The serious character of many of the conditions he showed should impress upon all of us with unforgettable clearness that we cannot afford to disregard this symptom, even when the catheterized bladder urine is chemically and microscopically negative; for if we do, such end-stage pathology as he demonstrated will in a large percentage of the cases be the final result.

Dr. Neff's splendid paper strengthened and supplemented this idea, showing with uncommon forcefulness the damage that neglect of early symptoms may produce in the upper urinary tract.

The so-called Hunner, or "elusive" bladder ulcer, is a definite pathological entity of a serious nature; it partakes of the nature of a phlegmon involving the entire thickness of the bladder wall. Radical and extensive bladder resections have in some cases successfully eradicated the disease. But a note of warning should be sounded, because even after the most extensive resections there follows a definite percentage of recurrence. I am, therefore, not yet fully convinced that this is the best treatment. We need more light on this subject.

Finally, let me emphasize the ureter stricture is neither a fad nor a myth. It is a surprisingly common lesion responsible for a most heterogeneous symptom-complex. Failure to recognize this fact is responsible for many cases of hydronephrosis and other kidney sequelae of a destructive nature.

My plea, therefore, is for the more general use of complete urological studies, including cystoscopy, in every case of persistent frequency of urination. Only by this means can such end-stage pathology in the urinary tract, as has been shown here today, be forestalled.

Dr. R. C. Bryan, *Richmond*: I have been very much interested in these papers and I do not believe I could get started good on my remarks regarding them in less than an hour.

I want to thank Dr. Dodson for his paper on Frequency of Urination; Dr. Stirling for his paper on Kidney Infection, and Dr. Neff for his paper on Hydronephrosis. I shall never forget the pleasure and benefit I have gotten from these papers.

Dr. L. T. Price, *Richmond*: I want to express my appreciation of the papers just read. As you know, the bacterial infection in the urine comes down from the kidneys and is the direct cause of the inflammation that accounts for the frequency of urination and, until this infection is cleared up, there is no hope of relieving the patient. This infection has been called a good many different things and treatments have been given to relieve the patients temporarily, only to have a recurrence soon. Many of these cases have been treated for several years without any apparent result. In the female, for instance, a woman who has borne a child and has had a laceration which may have caused a cystocele cannot be relieved without repair of this cystocele.

I believe, however, we have lost sight of the physiology of the kidney. If we would go back and keep the urine normal, as it should be, we would relieve a great many of these cases who have frequency of urination. The function of the kidney in taking from the blood what it should take and leaving what it should leave, is something I don't believe we understand. If we would get the physiology of the kidney worked out along this line and find out more about what the kidneys should do, it would give us considerable light on this subject. Dr. Dodson's paper covered the various conditions that cause frequent urination except stone in the bladder.

Dr. Geo. T. Klipstein, *Alexandria*: I think Dr. Stirling's paper on kidney infection was extremely interesting. I remember having a patient once who suffered from constant urination for twenty-one years. She had been under a very efficient physician in Washington for some time without any benefit. Then she went to Baltimore, where she was operated upon without much improvement. It was a very difficult case to handle. It was found later that the whole trouble resulted from focal infection. She suffered one day with toothache and the tooth was removed. There was pus at the root. Later it was found that all the teeth were infected. They were removed. After this she began to gain in weight and she was restored to normal health. This was all due to bad teeth.

THE SURGICAL TREATMENT OF PULMONARY TUBERCULOSIS.*

By F. S. JOHNS, M. D., Richmond, Va.

Since the original work of Brauer, the German internist, and his colleague, Friedrich, a surgeon of Marburg, in 1907, the surgical treatment of pulmonary tuberculosis has made rapid progress in Central Europe and other countries abroad. Until the past two years, the medical profession of North America did not take a vital interest in this work. I am convinced, however, that any treatment which cures thirty-five per cent of a class of advanced cases, and greatly improves another thirty per cent, should challenge our most serious attention—and is worthy to be presented before this Academy.

*Read before the Richmond Academy of Medicine, January 13, 1925.

A single European surgeon reports more than 500 thoracoplasties performed in the past five years. The entire number of cases reported by both United States and Canadian surgeons does not exceed 120. Alexander states that there are at least 15,000 cases in the United States which should have some form of surgical compression. This means that from six to eight per cent of all tuberculous cases under treatment should be classed as surgical.

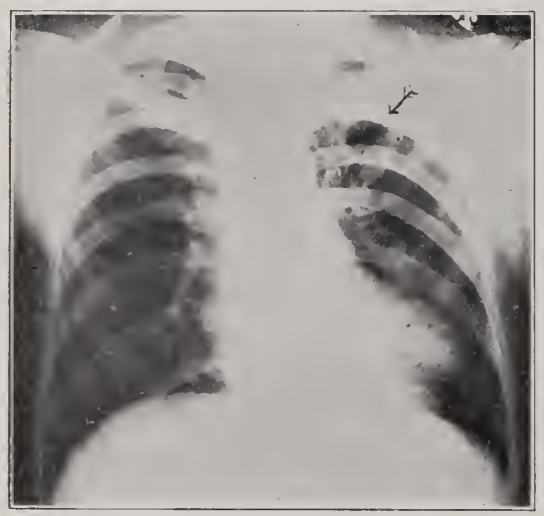


Fig. 1. Case I. Mrs. D. Before operation. Two cavities in left apex.

The question faces us: What is responsible for this neglected group of cases, usually given up to their sad fate as "hopeless"—so far as any cure shall further concern them? It is possible that the internists in charge of these cases lack confidence in the surgeons. Else,

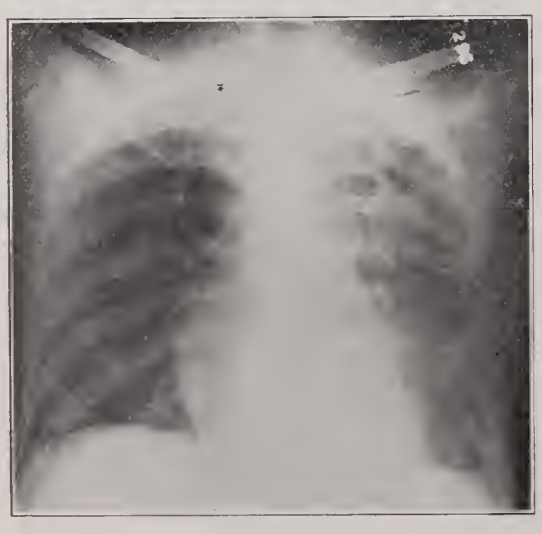


Fig. 2. Case I. Mrs. D. After complete resection of tenth to first ribs, inclusively.

have they followed closely the progress made in the surgical treatment of this disease? And, finally, has each case been checked up both before and after gas refills, so that it may be definitely determined whether or not adhesions are responsible for the inadequate compression results? These are the questions which must arouse the internist if such doomed cases are to come to the surgeon with a reasonable chance for recovery.

Mechanical compression for the treatment of pulmonary tuberculosis is not a new procedure. More than a hundred years ago, James Carson suggested this type of treatment. In 1885, DeCerenville did the first recorded thoracoplasty. He resected very limited sections of

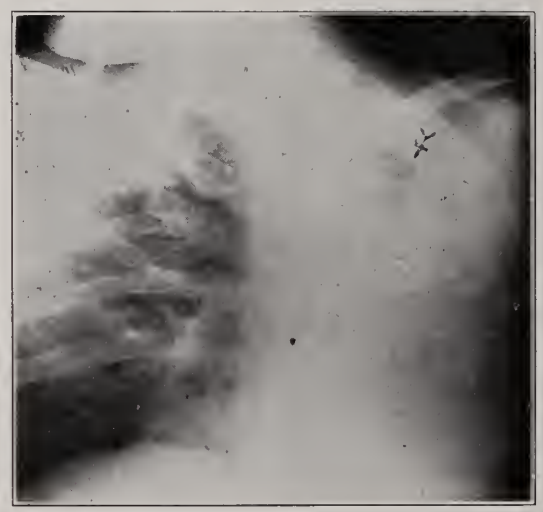


Fig. 3. Case II. Mr. W. Before operation. Cavity in upper lobe of left lung.

the upper ribs anteriorly. Improvement was noted. Since that time various types of operation have been advocated as is the custom in any new surgical procedure. The early operations being radical carried a high mortality, an example of which was the Shede operation used by Friedrich for his early compression cases. Those of you who have done this operation for other chronic conditions will agree that it is a major operation, even for a patient who is not a victim of advanced tuberculosis. Various modifications followed, until Sauerbruch, Friedrich's assistant, introduced the two-stage operation which is generally in use today.

This operation consists of a resection posteriorly of sections of the tenth to the first ribs inclusive. It should be done in at least two stages. The lower five ribs should be resected

first so that compression of the lower lobes will limit as far as possible the chances of aspiration. The decrease in the capacity of the chest after thoracoplasty depends not only on the amount of ribs resected but also on the parts resected. Saugman resects 130 cm. from ten ribs including their posterior extremities. He has found that this reduces the capacity of the chest one-third, which reduction is sufficient for the average case.

Colleta[1] has shown that when a lung has been compressed by thoracoplasty or pneumothorax

Fig. 4. Case 11. Mr. W. After resection of eleventh to sixth ribs, inclusive. Note collapse of lower lobe. Second stage to be done later.

it receives a greater amount of blood supply rather than a lesser one. This is due to the fact that in a collapsed lung there is a stretching which causes narrowing of the lumen of the vessels. It has also been shown that a compressed lung which has controlled its tuberculous lesion is abundantly supplied with connective tissue around the blood supply and bronchi. Necropsy reports also show that the amount of connective tissue in a compressed tuberculous lung is far in excess of the one uncompressed, and that it will form in a cachectic person in whom it could not be expected were the lung uncompressed.

The cases suitable for thoracoplasty should have had the usual routine sanatoria treatment plus intelligent use of artificial pneumothorax. There should be no tuberculous condition elsewhere in the body and the disease should preferably be confined to one lung; if there is an involvement of the so-called good lung it should be inactive. Of course, the ideal does not always exist, and there are cases with activity in the better lung which are greatly benefited, if not entirely arrested, by thoracoplasty. But one should be cautious about operating where there is any active process in the good lung, lest harm result to the patient and the operation itself get a bad reputation.

I believe I am safe in saying that the internist in charge of tubercular sanatoria have not so far been enthusiastic about referring cases suitable for thoracoplasties early enough: they have continued to treat them with hopeful but poor results, until finally the patients are referred for surgical compression as a last resort. Surgical treatment of such advanced cases is anything but encouraging. Both internists and surgeons familiar with this work urge that cases which are not progressing under the usual treatment have the operation early. Davies advises operation if there has been no improvement after six months of faithful sanatorium regime. But if a cavity exits he advocates operating at once. To get the best results there must be a close co-operation between internist and surgeon; so that those cases which are not responding to general sanatorium treatment plus artificial pneumonthorax may be recognized promptly and a surgical compression done in the early stage.

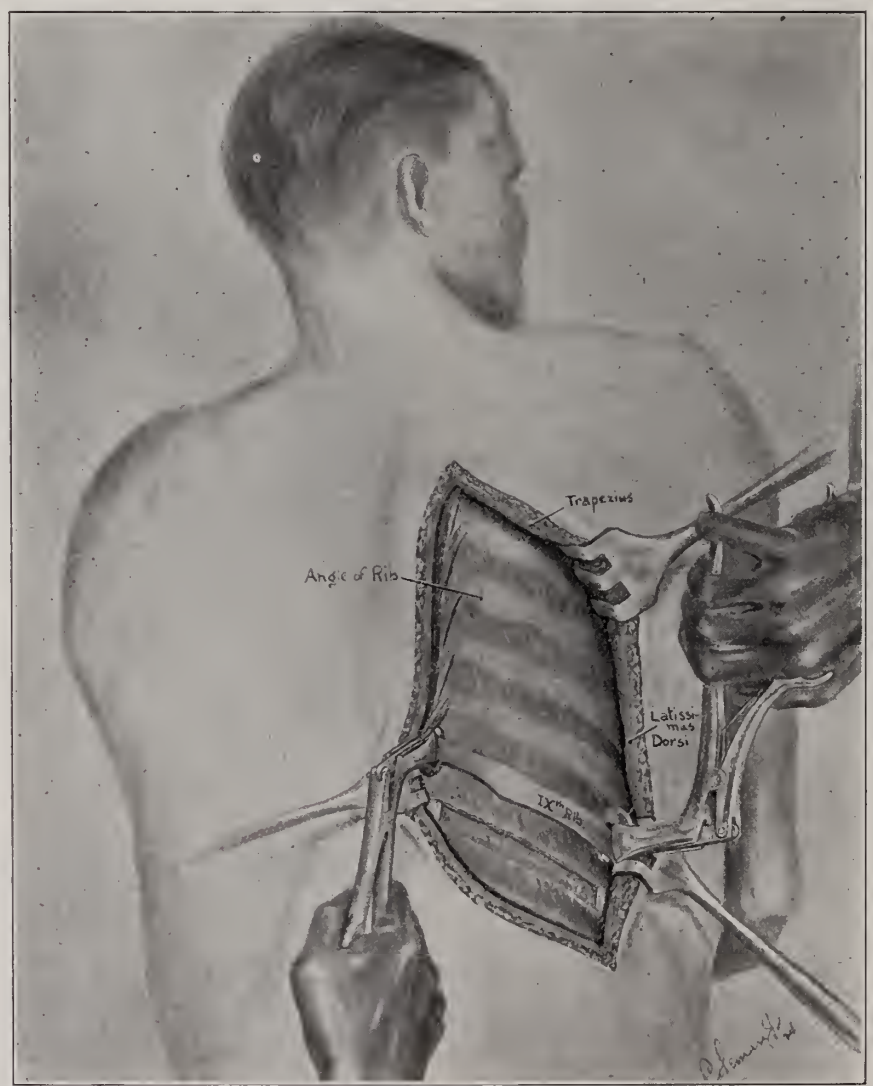
I want to emphasize a few important facts concerning the preparation of these cases for operation. It is essential that all the findings be thoroughly discussed by the internist and the surgeon prior to the operation, because upon this exchange of ideas frequently depends the success or failure of a given case. Every case should be digitalized before operation. Many patients have cavities of considerable size, and for this reason it has been recommended that they be given time to empty the cavities as far as possible by getting up as much sputum as they can before the operation. In order to put this into practice it is advisable to operate later in the day rather than in the early forenoon.

The choice of anesthetic is left with the individual surgeon. On the Continent one finds many surgeons recommending e t h e r and chloroform. Sauerbruch uses novocaine combined with ether. I am satisfied that all of these cases could be done under novocaine anesthesia, but I do not believe this is always wise. There is a certain type of nervous individual that takes local anesthesia badly. Such a one is not only sure to worry and cause a prolonga-

tion of the operation, but will become exhausted before the operation is completed. In this type of case I feel that novocaine reinforced with ethylene makes an ideal anesthetic. Any anesthesia that causes a long-drawn-out operation should not be used. A word of warning should be given as to the too free use of novocaine. Deaths from its misuse are being reported by many clinics. Our plan is to do a thorough operation in as short a time as possible.

There are certain important points to be noted here in the post-operative care of thoracoplasties. The head of the bed should be elevated. Morphine should be given for the first twenty-eight hours. The compressed chest wall should be securely strapped so that there will be no bulging on coughing. To get the maximum compression, it has been suggested that some form of compression binder be worn for about six months. Regeneration of the ribs is very rapid and a new chest is soon formed.

There are definite indications for phrenocotomy and apicolysis. Thus far I have had no personal experience with either of these procedures. Archibald thinks that the indication for phrenoctomy is rare, and states that if a thoracoplasty is done and the eleventh rib excised sufficient paralysis to the diaphragm is thus obtained. I feel that phrenocotomy might be of use as an index to the amount of surgery a border-line case could stand. The operation



Drawing No. 1. First stage: Resection from the eleventh to sixth rib, inclusive.

is a simple one and does not tax the patient severely.

Apicolysis is used in cases with large cavities in the apex which have not been sufficiently compressed by thoracoplasty. It is not without danger and has a limited use.

Professor Jacobini's method of clipping adhesions from between the lung and chest wall has not been generally adopted, and many of his own cases developed empyema after this operation. It is passing through the experimental state and its development is incomplete.

Drawing No. 2. Second stage: Resection from the fifth to the first rib, inclusive.

Report of two interesting cases. The first case I feel is ideal for surgical treatment. The second is far advanced and might be termed borderline.

Case No. 1.—Mrs. D., age forty, Pine Camp Hospital. Patient has had a definite pulmonary tuberculosis since October, 1923. When admitted to hospital, had lost twenty-five pounds. Sputum positive for tubercle bacilli. Two cavities 3 cm. in diameter in left upper lobe. Routine sanatorium treatment. Eleven attempts at artificial pneumothorax with poor results due entirely to adhesions. 180 c.c. sputum in twenty-four hours. X-ray examination: Left lung well advanced tuberculosis involving both lobes. Right lung: Slight peribronchial thickening and an occasional calcified tubercle was seen. Thoracoplasty on August 21, 1924, (resection of the first to sixth rib inclusive) under gas-oxygen-novocaine anesthesia. Mild reaction following operation. Returned to Pine Camp for continued tubercular treatment seven days after operation. Ninety days following operation patient has gained thirty-six pounds, no tubercle bacilli found in sputum. No expectoration. Patient's condition is ex-

cellent. On January 6th, second stage of operation was done. Resection from the tenth to sixth rib inclusive. Patient had an uneventful recovery.

Case No. 2.—Mr. W., age thirty-six, Pine Camp Hospital. Has had tuberculosis for five years. Advanced tuberculosis of left lung and a moderate tuberculous involvement of the right lung. 130 c.c. of sputum in twenty-four hours. Shortness of breath on exertion. Ten attempts at refills of gas gave no results. Many firm adhesions. X-ray report: There is a very extensive tubercular infection throughout the left lung with a cavity in the apex. Dense areas of consolidation. Pleural thickening and fibrosis. The heart and mediastinum are pulled to the left. Patient also has a moderate tuberculous infection of the right lung. Thoracoplasty in December (tenth to sixth rib inclusive). Local anesthesia. Slight pos-operative reaction. Maximum pulse rate 110 and temperature 99.4. Discharged from hospital ten days after operation. Continued treatment at Pine Camp Sanatorium. Patient states that his troublesome cough has cleared up seventy-five per cent and that his expectoration is much less. His shortness of breath has disappeared, due to a partial cardiolysis (second stage to be done later on this case).

Drawing No. 3. Showing the concavity immediately following operation.

The first case represents the ideal case for thoracoplasty. The second case is far advanced and should be classed as a borderline case. The

improvement in this case is most encouraging and is being followed with interest.

Bibliography.
1. Alexander, Amer. Jour. of Med. Sciences, CLXVIII, No. 1, 1924.

Johnston-Willis Hospital.

HEMORRHAGIC DISEASE OF THE NEW BORN.*

By LAWRENCE T. ROYSTER, M. D., University, Va.

It is not my intention or purpose to give an exhaustive article on the subject of hemorrhagic disease of the new born. I am merely presenting this subject to you at this time as a plea for a routine procedure which would not only save life in many instances, but prevent the occurrence of a rather definite number of feeble-minded cripples.

There are many causes for hemorrhages in the new born. Septic infections and syphilis are frequently accompanied by hemorrhage, while hemophilia may manifest itself quite early in life. (In congenital syphilis prolonged clotting time and hemorrhage from slight causes, or spontaneously may occur, and this is not influenced by blood injection). Hemorrhage may be caused by trauma; this is eespecially true of intracranial hemorhage incident to obstetric manipulation. But by far the most frequent cause of hemorrhage, visible or invisible, is the so-called hemorrhagic disease of the new born.

It has long been known that Little's disease, or spastic paraplegia, hemiplegia or monoplegia with or without mental impairment was caused by hemorrhage into the cranium, either at birth or during the few days immediately following birth. For many years it was thought that all these intracranial hemorrhages were due to trauma incident to some form of accouchement force. Subsequent observations, however, showed that a considerable number of these cases occurred in infants whose birth was apparently normal. Speculation developed the theory that prolonged, though otherwise normal, labor was responsible for the hemorrhage. It was supposed that this was especially apt to be the case when the first stage of labor was unusually long, the contractions of the uterus strong, and the os rigid, thus producing prolonged pressure on the head with a subsequent laceration of the longitudinal or one of the other large venous sinuses. Even this theory did not account for all the cases of intracranial hemorrhage or those presenting symptoms of intracranial pressure, for again it was noted that in many instances there was no evidence of anything abnormal in the delivery. The condition has been studied by many observers with almost as many conclusions as there have been observers.

It remained for Rodda, however, to demonstrate the fact that in a large proportion of cases presenting signs of intracranial pressure, there was a delayed clotting time of the infant's blood at some time during the first ten days of life. This delayed clotting time may be present at birth or develop on the third or fourth day, or again later within the ten day limit. This discovery forced upon us a new classification of hemorrhage of the new born, certainly that occurring within the cranial vault.

We may, therefore, divide them into (1) those in which no trauma has occurred, and (2) those due to trauma of the head and consequent laceration of the intracranial sinuses.

In hemorrhagic disease there may be visible bleeding or invisible bleeding. Visible bleeding may occur from the mucous membrane—from the month, nose or intestines. This may be entirely spontaneous or, in the case of the mouth for instance, it may be precipitated by trauma such as the wiping out of the mouth too forcibly with any rough substance, such as gauze. It may occur from the umbilical cord, however well it has been tied. There may occur subcutaneous hemorrhages in the form of petechiae, or those larger and known as purpura. It may occur in any of the serous cavities or from recent wounds such as in circumcision. Under the scalp it occurs in the form of cephalhematoma. Or finally, it may occur from the membranes of the brain constituting intracranial hemorrhage of the new born.

No doubt trauma may play a definite part in the last named condition, and a prolonged labor or a forcible one may throw pressure on the child's head, precipitating a hemorrhage which might not have occurred otherwise even though there were a tendency toward delayed clotting time. The amount of bleeding probably depends on the intensity of the condition, though this is by no means proved. There may be a slight ooze from the umbilical cord or the hemorrhage from circumcision may

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

be difficult or even impossible to control (circumcision should never be done under the tenth day unless checked by the clotting time and even then it is inadvisable earlier than this day).

A puncture wound for the purpose of taking blood for diagnostic purposes may result in serious hemorrhage. There may be a slight amount of blood accompanying the bowel movements or, on the other hand, a profuse hemorrhage may occur within the intestines or one of the body cavities so severe as to cause death without being able to discover the cause of death. Any of these hemorrhages may be very gradual and insidious, or so sudden, rapid, and profuse as to cause death before aid can be evoked. Under these conditions hemorrhage is always a serious matter, but by far the most serious and important is the hemorrhage into the cranial cavity.

Let us consider for a moment the symptomatology of intracranial pressure in general. Intracranial hemorrhage may come on before birth, even before the onset of labor, or it may occur during labor, or immediately after birth, or at any time during the first ten days of life. After this, hemorrhagic disease does not exist. The most frequent incidences of the disease are during the first twenty-four hours and during the third and fourth twenty-four hours.

There are several cardinal and classical symptoms of intracranial pressure. The first is cyanosis at any time during the first ten days of life. The infant may be born cyanosed and it may be difficult to resuscitate. There may be intermittent spells of cyanosis, the child appearing practically normal between the attacks. The child may have been apparently normal during the first few days of life and suddenly become cyanosed on the third or fourth day. This cyanosis may be so severe as to make us anticipate an immediate death, or on the other hand it may be so slight as almost completely to escape notice. Intracranial pressure is by far the most frequent cause of cyanosis in the young infant. That from congenital heart disease is comparatively rare, and is usually continuous and not intermittent. It is often difficult to distinguish between attacks of cyanosis due to intracranial pressure and those due to congenital atelectasis. In many instances such a diagnosis is impossible without a test of the clotting time.

The next most frequent symptom is disturbance of the infant's nursing. It may be difficult to get the baby to nurse at all, but the most frequent disturbance of this nature is that a baby who has nursed well for the first few days of life fails to nurse vigorously or cannot be induced to nurse at all. This may happen for one or two nursings only in the course of twenty-fours hours or for a whole day the baby may not nurse well. It may then continue to nurse as if nothing had happened. This symptom is almost always a positive indication of some degree of intracranial hemorrhage. There may be generalized convulsions from the moment of birth, or these convulsions may come on at any time during the first ten days of life, though they are far more frequent during the first few days of life. Convulsions may be generalized or local, in one extremity, or there may be only slight twitchings or fibrillations in one or more fingers or toes. Of course, symptoms due to intracranial hemorrhage from trauma are identical with these except that they almost always occur at or shortly after birth. If the hemorrhage is slow, it can be differentiated only by the blood examination.

Let us consider for a moment the extent of the hemorrhage or the amount of intracranial pressure. There may be simply an edema of the brain due to prolonged labor or the application of forceps. This may give rise to any of the signs or symptoms which have been previously described. If the edema is not of sufficient severity to raise the intracranial pressure to an extent which paralyzes respiration, the infant usually survives without any sequelae. On the other hand, it may be so severe as to cause death merely from intracranial pressure. (Repeated lumbar punctures may do good in these cases). There may be a large number of small petechial hemorrhages dotted all over the soft membrane. It is not likely that these ever produce death, and it is quite probable that they may not even produce symptoms; if they do, these symptoms are apt to be very slight. There may be a large hemorrhage from the membranes over one or both hemispheres, or the hemorrhage may be entirely below the tentorium. The single hemorrhage may be very small or may be as large as a pigeon egg. It usually becomes organized and through pressure produces permanent destruction in the brain tissue. It is likely that the subtentorial hemorrhage alone produces a bloody spinal fluid. The amount of intracranial

hemorrhage does not bear a definite relation to the severity of symptoms or to the permanency of after effects. The symptoms may be so severe in the beginning as to cause a prediction of immediate death, and yet the child may recover completely and apparently without sequelae. It is quite likely that such cases are due to edema alone. On the other hand, the symptoms may be so transient as to barely attract attention—a slight momentary cyanosis or failure to nurse well for one or two periods. No further symptoms occur, and yet, when the child begins to walk, we find that it is a spastic, and probably a feeble-minded child.

What is the etiology of this whole condition? As has already been stated, Rodda found that it is associated with a prolonged clotting time, but this demonstrated no real etiology, since the blood of the infant at the moment of birth is practically identical with the blood of the mother, and yet the infant shows a prolonged clotting time, while the mother's blood is not so affected. These observations left us somewhat in the dark, and only quite recently has he made another and still more striking observation (as yet unpublished, and comes to me as a personal communication) and that is that prolonged clotting time is frequently, if not always, associated with some degree of asphyxia. If this is true, it will account for the incidence of the disease to a certain extent, and tends to explain the variation in the time of onset of symptoms.

Let us glance just for a moment at the treatment of the symptoms as they arise. It is advocated by some observers that lumbar puncture is the rational treatment. Does lumbar puncture accomplish anything or not? In the cases due to edema alone it is reasonable to suppose that lumbar puncture frequently repeated may keep the intracranial pressure below the dangerous point until the edema subsides, and may in consequence tide the patient over this critical period. Lumbar puncture in the presence of traumatic hemorrhage does not appear to me to be rational, nor can we diagnose the condition from lumbar puncture alone unless the hemorrhage is subtentorial, in which case alone blood appears in the spinal fluid. Therefore, it is essential that we treat the cause of the condition rather than the symptom.

The treatment of delayed clotting time is the administration of whole blood as soon as any symptoms are noted. In the absence of facilities for testing the clotting time when either cyanosis, or convulsions, or twitchings, or inability to nurse appear, whole blood should be administered at once. Whole blood can be given at this age without typing, because infants under a month as a rule possess practically no hemolyzing action to adult blood.

In the light of our newer knowledge, prevention is of course the main indication. All infants should have the blood clotting time tested within the first few hours of life and again during the third or fourth twenty-four hours. Any clotting time above ten minutes with or without symptoms calls for an immediate injection subcutaneously of whole human blood. If the clotting time is delayed and the patient is given blood, the clotting time should then be tested every six hours and blood administered until the clotting time comes below ten minutes and remains so. In the light of our knowledge on this subject, it seems to me imperative that all physicians presiding at the birth of an infant should exercise prophylactic caution, and practice universally the testing of the clotting time. Thus, and only thus, can we prevent many deaths which now occur and are preventable, but we can do something more—we can prevent something that is worse than death, the feeble-minded spastic of later life.

The technic of the Rodda method of testing blood clotting time is as follows: two watch crystals, one and one-half inches in diameter; a lancet, either of the spring set variety or a plain small knife; and number six lead shot are all the equipment that is needed. The crystals and shot and lancet must all be surgically clean. The heel of the infant is wiped off with alcohol and ether, a good free stab wound is made (from 3 to 5 mm. deep). No squeezing of the heel or wiping of the drop of blood should be permitted. The first drop is discarded, but from the moment that it drops the time is taken on the second drop, which is allowed to fall in the watch crystal on the shot. The other crystal is placed over this to prevent the influence of the atmosphere or dust. The crystals are then set on a table and tilted every thirty seconds until the shot remains firmly enmeshed in the clot. Time is then taken. Anything below ten minutes is considered normal clotting time.

Two cases briefly cited serve to illustrate the difference between traumatic hemorrhage and that due to the hemorrhagic disease of the newly born. One infant born in the Univer-

sity of Virginia Hospital as a breech presentation with difficult delivery of the after-coming head showed symptoms of intracranial pressure immediately after birth, and died within twenty-four hours of respiratory failure accompanied by cyanosis. The clotting time of this infant was four and one-half minutes; autopsy showed a diffuse hemorrhage over both hemispheres with laceration of the longitudinal sinus.

The other was likewise born in the University of Virginia Hospital after an easy labor with vertex presentation. In this instance the cord was wrapped twice around the neck and in addition there was a knot in the cord. The infant was cyanosed when born, and was resuscitated with great difficulty; in fact, was never entirely free from the cyanosis. The clotting time of this infant was nineteen minutes. Whole blood was given, but it died with respiratory failure within twenty-four hours. Autopsy revealed a single clot, thin but extending over a greater portion of one hemisphere and adherent to the membranes. In all probability this hemorrhage occurred before birth, and it is likely it was due to asphyxia from the cord dystociae.

Discussion.

Dr. W. P. McDowell, *Norfolk*: In addition to the cerebral condition, as presented by Dr. Royster in his interesting paper, there is another danger in connection with hemorrhagic diseases of the new born to which I wish to call your attention. That is the constant practice, by so many physicians, of performing circumcision in the first few days of life.

I wish to emphasize this danger and to sound a warning against this practice. Only recently, in one of our local hospitals, on the second day of life an infant was circumcised, following which there was a continuous and rather profuse oozing, so much so that the patient was almost exsanguinated. The attending physician was preparing to use actual cautery in an attempt to stop the bleeding, when one of the surgeons appeared and cautioned against this, advising instead the giving of an intramuscular injection of whole blood. The mother was eclamptic and her blood was not thought suitable, so the physician acted as donor. 20 c.c. of whole blood was given intramuscularly and the oozing was soon stopped. There is no need of this early method, and every reason for a postponement until after the tenth day. Rodda has shown that there is a prolongation of coagulation and bleeding time from the first to the maximum on the fifth day of life, with a return to the average first day's determination before the tenth day. The Rodda method of determining the clotting time is a very simple method, easily carried out at the bedside.

I would ask Dr. Royster to describe the method in closing the discussion. We are due Dr. Royster a vote of thanks for the interesting paper.

Dr. Leroy A. Calkins, *University*: This paper and the work preceding it relieve the obstetrician of a great deal of responsibility and at the same time add responsibility to his work. It relieves him in that the blame of sudden death in very young babies is placed on the faulty coagulation of the blood and not on birth injuries, but it adds responsibility to his work in that it makes it necessary for the obstetrician, if he does not consult the pediatrician, to test the coagulation time of the baby immediately after birth.

An interesting case of prolonged coagulation time, present at birth, came under my observation two and one-half years ago. We took the coagulation time of the blood at birth for the reason that the baby showed embarrassed respiration. There was no spasticity or other sign. We felt the probability of hemorrhage near the respiratory center at the base of the brain. The clotting time was found to be twenty-two minutes; the bleeding time twenty-four minutes. Blood injection was done immediately, and the clotting and bleeding time came down to normal and remained there. The child is now two and one-half years old and there are no signs of embarrassment of the nervous or muscular mechanism and no impairment of mentality.

My opinion differs from that expressed in the previous discussion as to the bleeding time of the baby and the mother being the same at the time of birth. It was my good fortune to take the bleeding time of both mothers and babies at birth, in Rodda's first series of cases, and I usually found the mother's bleeding time three to five minutes. Those babies who later developed a longer time I found six, seven, eight, or even nine or ten minutes at birth. Nearly all were within ten minutes at birth, but there was some degree of prolongation in those cases which later developed long bleeding time.

Dr. R. M. Hoover, *Roanoke*: I listened to Dr. Royster's paper with the greatest interest, because, in orthopedic work, some of the most troublesome cases are those which are spastic to varying degrees. It seems to me that Dr. Royster has made a wonderful suggestion as to prevention. Unfortunately, there is very little hope in after treatment at the present time, in those cases in which mentality is markedly impaired. In such cases any treatment of the local conditions of the extremities is not thought advisable, and if, by trying the coagulation time at birth, we can prevent at least a certain percentage, we have done a lot. In Virginia, as everywhere, we find a surprising number of these spastic cases, either mild or marked, and if we can prevent a percentage of these we will have done a great deal for humanity.

Dr. S. B. Nickels, *Clinchport*: I would like to ask Dr. Royster how much mother's milk he injects, and if he has ever noticed any reaction.

Dr. L. T. Royster, *University*, closing discussion: As to the clotting time of mother and child, in cases of hemorrhagic disease, it is not the same at the birth of the child.

Twenty-five c.c. of mother's blood should be injected if you can get it. Get anybody's blood: it makes no difference. Any amount will do some good, but twenty-five c.c. should be given if possible. The clotting time should be checked up by frequent tests, and if it does not improve, repeat the injection.

The method of Rodda is as follows: Take two watch crystals, cleaned with soap, alcohol, and ether, and a No. 6 shot, which has been cleaned in the same manner. The shot should be handled, if possible, with forceps, to prevent soiling or greasing by

contact with the fingers. Cleanse the heel and make a puncture wound deep enough to allow two drops of blood to drop freely, without pressure or manipulation. The first drop is discarded entirely, and the second used. Count your coagulation time from the instant the first drop falls. Put the second drop on the shot in the watch glass and cover it. Tilt it every thirty seconds until the shot is enmeshed in the clot, and read the time.

TREATMENT OF DUODENAL ULCERS.*

By STUART McGUIRE, M. D., Richmond, Va.

Gastric and duodenal ulcers may be acute or chronic. Acute ulcers are usually multiple. They develop rapidly and usually heal rapidly. They are most frequently the result of some severe infection or grave toxemia, and are not often diagnosed unless they cause hemorrhage or perforation as the symptoms they produce are usually attributed by the attendant to the primary disease. A chronic ulcer may result from an acute ulcer which fails to heal, or may develop and persist from causes for which we have many theories but no definite explanation. This paper deals only with chronic ulcers.

It was formerly taught that gastric ulcers were frequent and that their diagnosis was easy, while duodenal ulcers were rare and their diagnosis was difficult. The modern surgeon and roentgenologist have proved that just the reverse is true. Gastric ulcers are only one-fourth as frequent as duodenal ulcers and their diagnosis is attended by a much greater chance of error.

Occasionally in medical writings it is a practice to use the word "peptic ulcer" and under this term describe the symptoms and treatment of both gastric and duodenal ulcers. This is unfortunate, as anatomically and pathologically they are distinct and the indications for their treatment are very different.

The pyloric vein and the pyloric white line mark the division between the stomach and duodenum, and on inspection it is usually easy to locate the origin of an ulcer and to designate it as gastric or duodenal. A gastric ulcer is rarely within an inch and a half of the pylorus and a duodenal ulcer almost always begins one-half inch or more from this landmark, although by extension it may actually reach the stomach.

A gastric ulcer develops in an acid field, and for this or some other reason has a strong tendency to undergo malignant degeneration, while a duodenal ulcer grows in an alkaline soil and rarely, if ever, develops into cancer. A gastric ulcer should be regarded as a potential cancer, and should be removed surgically as soon as discovered, while a duodenal ulcer should be considered a benign lesion and should first be treated medically unless there are indications of danger to the life of the patient from hemorrhage, perforation, or obstruction.

While it is true that the symptoms of ulcer of the stomach and duodenum have so much in common that we frequently speak of an "ulcer history," it is a fact that they differ strikingly in certain respects, and that a differential diagnosis can usually be made with reasonable certainty on the clinical history alone. The symptoms of both gastric and duodenal ulcers are indigestion, pain, vomiting and hemorrhage, but the characteristic symptom is pain. In gastric ulcer the pain comes on shortly after a meal, gradually subsides and is reproduced by taking food. In doudenal ulcer the pain does not come on until three or four hours after a meal, and is completely and immediately relieved by taking food. Patients with ulcer of the stomach dread taking food, while patients with ulcer of the duodenum soon learn to keep a biscuit or glass of milk easily accessible in order to arrest the so-called hunger pain when it develops.

The presence of blood in either vomitus or feces is significant but not conclusive of the existence of an ulcer. An analysis of cases in which such bleeding occurred showed that from two per cent to four per cent were due to gall-bladder disease, one to two per cent to chronic appendicitis, and a smaller proportion to cirrhosis of the liver, splenic anemia, hemophilia and purpura.

The analysis of the stomach contents after a test meal once so largely relied on as a means of diagnosis has been largely discredited. It is true that twenty per cent of cases of gastric ulcer and seventy-two per cent of duodenal ulcer show hyperchlorhydria, but this condition is also common to other diseases.

The subjective symptoms of duodenal ulcer are so definite and clear cut that a diagnosis can be made with reasonable certainty from the patient's clinical history alone. It is very different with gastric ulcer, for here the symptoms are frequently misleading. This fact is expressed by Moynihan with characteristic felicity in a recent lecture in the following words: "I may perhaps sum up my experience in the clinical diagnosis of these two condi-

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

tions by saying that when with great confidence I make the diagnosis of duodenal ulcer from the clinical history alone, I feel wounded and amazed if I prove wrong; whereas, when with a sense of pride in my courage I make the diagnosis of gastric ulcer I feel very content, even a little elated, if I prove right."

Fortunately in the modern method of X-ray examinations of the stomach and duodenum, we have a means of securing information of great diagnostic value. In duodenal ulcers the lesions can be shown by obstruction or deformity of the bulb, and in gastric ulcers by niches, notches, craters, or an abiding spasm of a zone of the stomach. Sometimes the findings are misleading because when they are positive the condition may be due to other causes, and when negative they may be due to failure of the ulcer to produce deformity.

In estimating the value of an X-ray report, the personal equation of the roentgenologist must always be considered. Today X-ray machines are being installed in almost every hamlet and village in the country, and enthusiastic but inexperienced operators, who have learned the jargon, but not the technique of their profession, are turning out scientifically worded, but weird and woolly, reports. Almost any technician can make a good plate but it takes a highly trained expert to read one properly and make a correct diagnosis from what it shows. Experience has taught that an unreliable roentgenologist is a dangerous friend, and that in certain instances in making a diagnosis it is better for a time to discard the X-ray report and depend on the patient's symptoms and clinical history.

As previously stated, the indications for the treatment of gastric and duodenal ulcers are so different that the two should not be considered together. For lack of time to take them up separately, the remainder of this paper will be devoted to the discussion of the treatment of chronic duodenal ulcers.

The first question in a given case is whether the treatment shall be medical or surgical. Shall the patient be given the medical treatment standardized by Sippy which consists essentially of rest in bed, a restricted diet and the neutralization of the stomach contents by the administration of alkalies, or shall the abdomen be opened by the surgeon and the ulcer excised or a posterior gastroenterostomy performed? On this subject there has waged a vigorous and almost disgraceful controversy. Surely this is due to lack of understanding, because no reputable physician would treat a patient unless he thought there was a reasonable chance of relieving him, and no conscientious surgeon would operate on a patient if he believed a cure could be effected by less heroic measures. Physicians and surgeons are equally honest and intelligent, and when they differ so decidedly there must be a happy middle ground on which both will eventually unite.

The explanation of the present situation is the fact that physicians treat patients with duodenal ulcers in the early stages of the disease, and see them relieved of their symptoms and apparently restored to health. They are usually ignorant of the relapses that occur. Surgeons deal with patients who have suffered from duodenal ulcers for years and have been treated by many physicians without permanent relief. They are, therefore, impressed with medical failure and unmindful of medical cures.

After all, the question is academic, as no patient will submit to an operation until he has first tried medical treatment, and no patient will continue medical treatment indefinitely but will eventually go to a surgeon if he fails to secure relief.

Personally, I never advise an operation until after the patient has been properly treated medically without success unless the symptoms point to the dangers of hemorrhage or perforation. I always tell the patient of the necessity of hearty co-operation with the physician and warn him of the patience and self-denial which must be practiced in order to secure the desired results. I believe medical treatment would be more successful than it is today if the profession would unite in urging patients to continue it faithfully over a longer period of time.

The surgical treatment of ulcers of the duodenum is indicated in three conditions: (1) hemorrhage; (2) perforation; and (3) persistence of symptoms despite painstaking and prolonged medical treatment.

In cases of hemorrhage an immediate operation is rarely advisable. The vast majority of patients will have a better chance for life if they are first treated by absolute rest, the prohibition of food, the administration of horse serum or the transfusion of blood. After bleeding ceases and the general condition improves, an operation should be done to prevent a recurrence of the symptom.

In cases of perforation an operation should be done as soon as the diagnosis is made. Sometimes it is sufficient to simply close the opening. If this constricts the outlet of the stomach it should be augmented by a gastroenterostomy. Some surgeons advise the latter as a routine procedure.

In cases where medical treatment has failed, surgical treatment is indicated to relieve symptoms and restore health. In rare cases it is possible to simply excise the ulcer and close the incision in such a manner as to avoid obstruction of the duodenum. This can only be done when there is a single small ulcer located on the anterior wall of the bowel at some distance from the pylorus.

Usually the surgeon has to choose between some form of pyloroplasty or gastroenterostomy. Each method has it advantages and disadvantages, both have their special field of usefulness, and neither should be employed to the exclusion of the other.

The operation of pyloroplasty was introduced by Mikulicz and consists in dividing the pylorus by an incision in the horizontal axis of the gut and suturing the incision at right angles to the line in which it was made. This permits the excision of the ulcer and overcomes any obstruction at the pylorus by enlarging the outlet of the stomach. Finney adopted the principle of Mikulicz, but in his operation divides the pylorus by a horse-shoe incision, one arm extending down the duodenum and the other along the greater curvature of the stomach. Horsley has recently so changed and perfected Mikulicz's operation that he has practically introduced a new procedure, and his technique promises to find favor with many surgeons.

The operation of pyloroplasty can only be satisfactorily performed for duodenal ulcer when the lesion is located near the pylorus and when the adjacent bowel wall is comparatively normal. If the ulcer is more than three-fourths of an inch from the pylorus it cannot be excised, and if the tissues are thick and inelastic they cannot be approximated in the desired position without producing deformity and they cannot be sutured without danger of leakage. Horsley who advocated the operation states that it cannot be performed in twenty-five per cent of cases, while Deaver and others place the percentage much higher.

The advantages claimed for pyloroplasty are that it places the outlet of the stomach in its anatomical and physiological position, that it enables the surgeon to excise the ulcer area, and that patients do not suffer afterwards from the vomiting due to regurgitation of bile and are not liable to the danger of a secondary ulcer from the action of gastric juices on jejunal mucous membrane.

The disadvantages of a pyloroplasty are that the incision is made through septic and ulcerating tissue which may cause local or general infection, that the incision is made through scar tissue which may contract and cause obstruction and that the incision is so located that it may become adherent to the liver or abdominal wall and cause interference with the movements of the stomach.

During the past year I have done pyloroplasties by Horsley's method on six carefully selected cases. The operation proved easy of execution and there were no mortalities. Despite satisfactory convalescences, none of these patients expressed the enthusiastic appreciation of the relief given them to which I was accustomed from my experiences in similar cases in which I had done gastroenterostomies. There has not been time to learn the final result in these cases. Those I have traced have continued to improve. I trust my temporary disappointment will be justified by the patient's freedom from complication and ultimate cure.

The operation of posterior gastroenterostomy for duodenal ulcer consists in an effort to sidetrack the diseased area by making an anastomosis between the stomach and jejunum. The method is applicable practically to all cases. It is easy and safe in execution because the tissues in the field of operation are normal. Its effect on the stomach is both mechanical and chemical. Mechanically it permits the gastric contents to pass readily into the intestines as the new opening between the stomach and jejunum relieves any obstruction that may have existed at the pylorus. Chemically it lowers the acidity of the gastric contents, as the stoma also permits the alkaline secretions of the liver and pancreas to pass into the stomach. Thus, gastric dilatation and food stagnation are cured by drainage, and the hyperacidity of the stomach is relieved by neutralization of the acid with the patient's own alkali.

The objections offered to the operation of gastroenterostomy are that sometimes food escapes too quickly from the stomach, causing bowel disturbances, that occasionally bile and

pancreatic secretion enter the stomach in large quantities, causing nausea and vomiting or the so-called vicious circle, and finally, that in a few cases an ulcer develops in the jejunum, at or near the the anastomosis, due to the irritation of a mucous surface which has no natural immunity to the action of gastric juices. This complication can be made infrequent by placing the opening at the bottom of the stomach so there will be no retention, and by using catgut instead of silk or linen so there will be no unabsorbable sutures left as a possible source of irritation.

While the operation of gastroenterostomy undoubtedly requires explanation and apology, still it gives complete relief in eighty per cent of properly selected cases, and I believe will continue to be employed by many surgeons until some better operation than those now in use has been devised.

Discussion.

Dr. J. Shelton Horsley, *Richmond*: I feel about the surgical treatment of duodenal ulcer much as Dr. Stuart McGuire does. I do not think that any one operation can be made to fit all cases. When the ulcer is extensive or when there are many adhesions, or if there is marked constriction, a posterior gastroenterostomy is undoubtedly the best operation. If, however, the ulcer is not large and is circumscribed, and particularly if it is bleeding, a pyloroplasty such as I have been doing for several years is a very satisfactory operation. The more extensive the pathology the greater the indication for gastroenterostomy, and the less the pathology the stronger the indication for pyloroplasty. A posterior gastroenterostomy with an open pylorus is very likely to give trouble. When the pylorus is closed or when there is a potential closure because of the extensive ulcerated condition, the alkalinity of the duodenal contents is not affected and can protect the jejunum at the gastroenterostomy stoma. When, however, the duodenum and pylorus are left open the alkalinity of the duodenal contents is lowered by the acid gastric juice which gains exit through the pylorus, and, consequently, the duodenal contents are weak in alkalinity and cannot protect the jejunal mucosa from the acid gastric juice going through the gastroenterostomy opening. In such cases, either a jejunal ulcer or jejunal irritation is likely to result.

When the ulcer in the duodenum is more than an inch from the pylorus, I think it should be excised transversely and sutured, probably without any operation upon the stomach at all. I do not feel that there is any place for radical resection of the stomach for the cure of duodenal ulcer. An ulcer in the stomach, of course, demands excision and probably partial gastrectomy.

It seems to be demonstrated that the gastrin that Edkins brought forward about fifteen years ago as acting as a hormone elaborated by the pyloric mucosa to stimulate the activity of the rest of the stomach does not really exist as a specific substance. A similar so-called hormone may be found in meat and various vegetable and animal matters and is rather constant in the ordinary mixed diet. There can be no occasion, then, for excising the pyloric mucosa which normally secretes alkaline material in order to do away with the supposed stimulating hormone which physiologists have shown is not secreted by the pyloric mucosa.

About forty to fifty per cent of the duodenal ulcers in my practice are operated upon by pyloroplasty. In most of the other cases a posterior gastroenterostomy is done. In a very few there is simple excision. As a rule, when I do a gastroenterostomy the pylorus is ligated just tightly enough to occlude it with stout kangaroo tendon. This gives rest to the duodenal ulcer and promotes healing. In a letter from Dr. Charles Mayo, under date of June 25, 1924, he says, as follows: "At the present time in nearly forty per cent of our cases of ulcer of the duodenum we are trying to confine the work to the pylorus and region of the ulcer instead of making a gastroenterostomy." A careful follow-up of cases of duodenal ulcers that have been operated upon seems to demonstrate to my mind that the operation must be suited to the particular case. If properly done the mortality should be very low. I have done sixty-four of the pyloroplasties according to the method I have described. All the mortality was in the first twelve, and I think if I had these patients to operate upon again for a similar condition they doubtless would not die. In the last fifty-one consecutive pyloroplasties there has been no mortality.

I find that the chief objection to pyloroplasty is that there is occasional recurrence of the ulcer. Dragstedt has called attention to the fact that injury or multiple sutures in the pyloric mucosa will often produce an experimental peptic ulcer in a dog. For the last six months I have omitted suturing the gastric mucosa, merely catching the muscular and peritoneal coats and trying to avoid even grasping the pyloric mucosa with forceps. The first suture line unites the muscle and peritoneum of the pylorus and when the duodenum is reached the whole thickness of the duodenal wall is included, as it is impossible to isolate the duodenal mucosa without too much trauma. The flap of pyloric mucosa probably protects the line of sutures through the duodenum.

A CHEAP PERMANENT, SANITARY TOILET FOR RURAL DISTRICTS.*

By B. B. BAGBY, M. D., Richmond, Va.

For fifteen years the physicians of Virginia have known that hookworm is due entirely to soil pollution; for twenty years we have been taught that cholera infantum and infectious dysentery in the country are due to fly infection from the insanitary privy; while for nearly a geueration we have known that typhoid fever is only contracted by eating or drinking human excreta. Moses, 4,000 years ago, for reasons of health, commanded the Children of Israel to cover up their feces (Deut. 23rd Chap., 12-14 v.), yet there are many members of this Society that still have excreta disposal arrangements of their own that are not fly proof, and others have tenant houses that have no toilet whatsoever, and this, in the face of the fact that the sanitary condition of no community

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

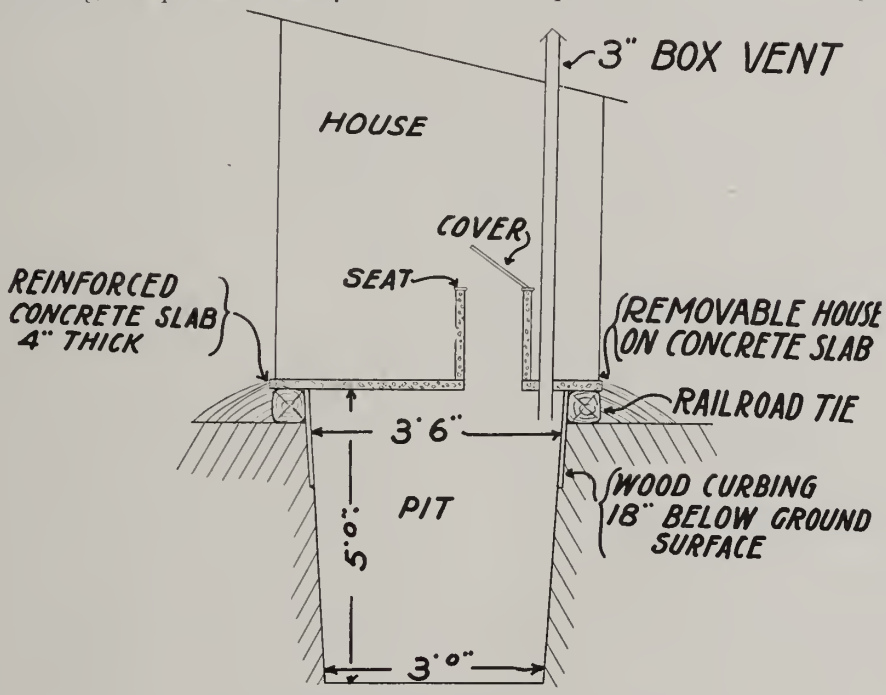
will ever be better than the homes of the physicians in that community.

There is not a county in Eastern Virginia that does not spend every year more money for the cure of these diseases alone than it will cost to sanitate every home in the county. Of course, the anxiety and suffering cannot be estimated in dollars and cents. I do not have to remind you that it is the physician's duty to reduce the sum total of distress.

Many people, physicians among them, however, unintentionally set a bad example of home sanitation; privies go to pieces so easily. The fact that it is now almost impossible to obtain satisfactory heart lumber in the rural communities is a serious difficulty, for if privies are built out of sap lumber they will scarcely remain fly proof one season.

This difficulty is being solved. In Henrico County we are building a very satisfactory sanitary toilet that is cheap and durable. It is a regular pit privy with concrete floor and seat. Any old house can be used over this concrete slab. The protection is under the concrete seat and not in the house. Any jack-leg mechanic who can mix concrete can build this privy. All that is required is two bags of cement, four pieces of two by four framing timber four feet and two inches long for the outside forms for the slab; for a platform some old lumber on which the concrete is poured; a nail keg for the inside form for the seat; a lime barrel with the bottom knocked out sawed off four inches shorter than the nail keg for the outside form of the seat. Some wire or iron is needed for reinforcement. As the cement is poured between the nail keg and lime barrel, three long bolts with heads down and screws up are imbedded in the cement, these bolts are set so as to pass through the seat to hold it stationary. A pint tomato can should also be used to make a hole in the cement slab for a vent pipe.

The pit should then be dug and enough



SECTION OF SANITARY PIT PRIVY

boards put in to keep it from caving, just as is done in any pit privy. But great care should be made to have a strong foundation on which the concrete slab is to rest. This is easily made by placing on two sides of the hole old railroad ties, a half of a tie on each of the other two sides. This allows the two long ties to project about two feet beyond the hole on each side. Of course, the dirt from the hole should be packed tightly on the outside of the ties.

A good tight fitting top to the seat should be made and copper wire screening should be put over the vent pipe. A slab four feet square will cover a pit large enough to hold the excrement of a family of four for a long time. If there are more in the family a larger pit covered by two slabs three by six feet should

be dug, the slabs being placed side by side over the pit. If water gets into the pit the excrement will disintegrate rapidly and be taken up by the surrounding earth as in a cesspool. If the material in the hole is not too moist it can be burnt by pouring in a gallon of kerosene and setting it afire. This may be done without danger to the building. But if it should fill up, another pit can be dug near the first, both the slab and house being moved over to the second pit, and the first covered with dirt. The farmers of Henrico plant cucumbers over the first hole and sell them to the city people, thus getting back their original small investment.

Discussion.

Dr. Walter Cox, *Winchester*: I believe Dr. Bagby's paper is of the greatest importance. It is almost impossible to get the people to appreciate any kind of sanitation, and it is equally impossible to get the support in this work of the board of supervisors. We have been having typhoid, forty or fifty cases in Frederick County, more this year than ever. As health officer of Winchester, I mentioned some necessary sanitation measures to one of the commissioners. He dismissed the subject with the remark that there was a new call for money every day, and that the people might as well die of fever as starve to death.

THE ORIGIN AND EVOLUTION OF THE ATTRIBUTES OF MAN. THE SOUL AS A WORD THOUGHT. MAN'S SPIRIT AND THE COSMIC PROCESS.*

By CHARLES E. BOWLES, M. D., Pulaski, Va.

The Origin and Evolution of the Attributes of Man

In approaching a subject of such magnitude and deep concern to the human race, I do so with a fervent desire to arrive at the cause and effect of the many attributes to which mankind is heir and offer my feeble suggestions as an aid in arriving at more definite conclusions.

At our last meeting I attempted to show in a concise way, that the protoplasmic cell was developed from a gradual blending of the inorganic chemical elements, one into the other, and that the reaction occurred as a result of a definite form of energy or group of electrons being absorbed by the atoms of the cell. I further attempted to show that these ions are what we know as energy and that when they are appropriated by the atoms composing the brain cells, they constitute the sensations or materials for intellect. The grouping of these ions or sensations in other cells results in more and more complex atoms or perceptions, conceptions, complex conceptions, etc., being formed, and in the molecules of the cells becoming more and more complex, until a new element is formed and a distinct chemical reaction occurs, which results in a higher type of tissue.

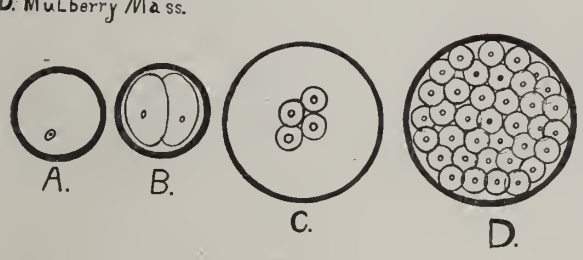
The thoughts in this class of cases appear to be purely chemical, organic, animal or transitional, and result only in reactions, reflexes, tropisms, muscular acts and a higher development of the cell. In this paper I shall continue the discussion and endeavor to show three distinct stages in the evolution of thought: Molecular, atomic and electronic, each passing through a transitional stage, while commingling and co-operating with the other and developing in accordance to the three great laws, attraction and repulsion, chemical valency, and complexity.

First, let us consider the relationship existing between the ions or sensations and that which we know as life. Huxley said that plasm is the basis of organic life, but since this is simply a chemical compound of carbon, we must search further for that which accomplishes the real processes of life. In its simplest form, the living cell is merely a soft globule of plasm, containing a firmer nucleus. The body and nucleus differ somewhat in chemical composition but both are composed of carbon, hydrogen, oxygen, nitrogen and sulphur. The reaction in the cell is produced by a stimulus or sensation from the outside world, or, as Dr. Blackford quoting Dastre, at our last meeting, so well put it, "Every vital manifestation is a response to a stimulus, a provoked phenomenon." The reaction in the cell consists of two phases, appropriating and eliminating. The appropriating phase attracts the cell and object while the eliminating phase repels the cell and object. This clearly demonstrates the action of these three great laws. The magnetic law of attraction and repulsion produces the chemical valency which results in the law of complexity, and further shows the sense of perception of stimuli, the movements of the plasm, its nutrition, growth and reproduction to be determined by the particular chemical composition of the cell and the type of stimuli. That which is the real basis of life is not the chemical compounds of carbon, as Huxley said, for this is dormant, but the ions or sensations, which not only produce the reactions in these chemical compounds of carbon or plasm but

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

actually produce the chemical elements of which it is composed.

Therefore it is evident, that both the cell and the elements of which it is composed consist merely of groups of these ions or sensations in cellular and molecular forms and that the real life of the compound is the ions or sensations. This fact is clearly demonstrated in the disintegration of the radio-active sub-

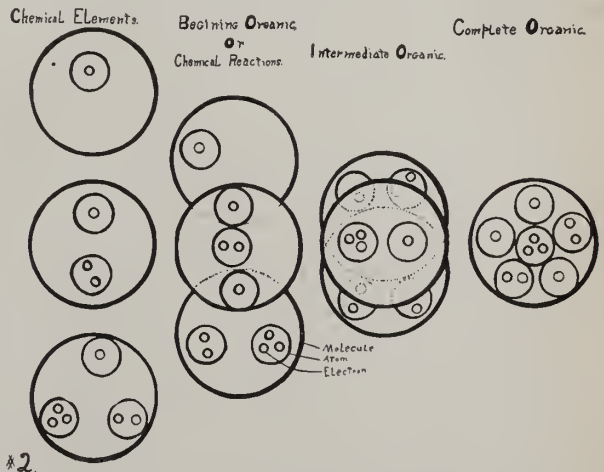


#1

stances, such as uranium. When uranium loses three helium atoms it becomes changed into radium. If we subtract the atomic weight of eight helium atoms, or thirty-two, from the atomic weight of uranium, 238½, we get 206½ which is practically the weight of lead, lead being 207. The slight difference in the calculation is probably due to eliminated or appropriated ions. The disintegration of uranium through four transformations has been traced and it is thought the fifth would result in lead. As a result of the work of Giesel, Becquerel and Villard, the alpha, beta and gamma rays of radium have been separated. The alpha rays were found to be positively charged helium atoms, shot out from the radium with a velocity of from 9,000 to 12,000 miles a second. Later, Madam Curie was able to demonstrate that they were the principal source of the heat emitted by radium. The beta rays were shown to be similar to, or identical with, the cathode rays or negatively charged particles (electrons). The gamma rays were shown to be non-electrified radiations. Unlike the alpha and beta rays, they can not be deflected by a magnet, nor refracted nor reflected, the gamma rays being probably a blending of the alpha and beta rays and therefore neutralized.

Bearing these fundamental facts in mind, let us briefly consider the effect of the ions or sensations on a few types of animals, beginning with the unicellular animal and ending with man. On receiving a positive stimulus, the paramecium reverses its cilia, twists its body and moves ahead. In the sponge, which has no nervous tissue, the individual cells receive their stimulus direct from their surroundings. There does, however, seem to be some slight transmission of impulse near the opening or outlet, which causes it to contract. In the sea-anemones, which is the lowest form of multicellular animal containing an organized nervous structure, we no longer find the cells acting individually but in groups, receiving their stimulus through the more highly developed nervous structure, which is the pre-established hereditary organization. In this animal, the sensations acquired by one side are of no benefit to the other side, for the animal contains no central nervous organ. Each side has a separate organized nervous structure under the control of relay cells.

In this progressive development of the organization and centralization of the sensations under the dominance of one cell, we now come to the vertebrates. Here the spinal cord is a fairly uniform structure, but the brain exhibits a strikingly progressive development. This is especially true in the cerebellum and cerebral hemispheres, both of which grow immensely in size and complexity, as we proceed from the fishes to man. In the lower vertebrates, the sense of smell occupies the chief function of the cerebral hemispheres and, from the predisposed nervous organization of the animal, the



#2.

instincts or multiple group responses to certain stimuli arise. In the mammals, however, the hemispheres have reflected upon them, in addition to olfaction, practically all of the sensory activities of the body and the mechanism of

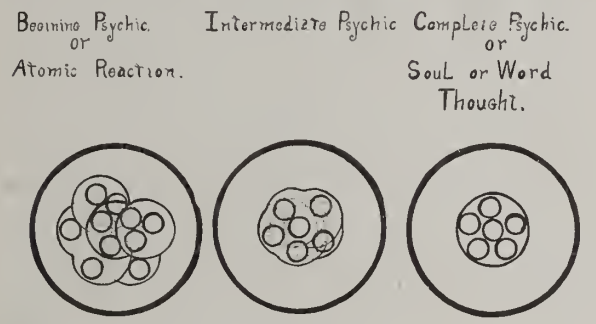
the voluntary control of the nomenclature. These added parts come to be the great central organ of the higher animal and receive almost the whole of the sensory inflow. The nervous structure having apparently developed in consequence of the ions or sensations received and deposited between the cells and later at the end of the new nerve fiber, similar to the tiny tumors we find on the end of cut nerves today. Our sense organs did not develop in consequence of a central nervous system but our central nervous organ probably developed because of the repeated reactions occasioned by the ion or sensations received and deposited at the end of the nerve fibers. It is, therefore, evident that from the bilateral nervous structure of the sea-anemones, there are numerous progressive steps before reaching the central brain cell, in which the two systems become fused under one head. Through the entire process the control of the body cells has gradually been transferred from the individual cell, to the more highly organized and centralized nerve and brain cells, until in the higher mammals we find the various nervous systems conveying their impulses, through the more and more complex centers to the cortical centers, then through the afferent nerve fibers to the association centers, where the supreme blending of the sensations culminates in our personalities. The work of Henchen and other investigators in localizing the cortical centers of the special senses is very pertinent here, since they tend to show the interrelation and organization of the bodily functions under the dominance of one cell. For, as the cortical representations of the macula are found in the occipital lobe and each quadrant of the retina also has a localized cortical representation, so higher co-ordinating and combining centers probably exist in the angular gyri of the parietal lobe, according to these investigators. The realization of word sensations is a further evidence of the necessity of organization, since a word has four principal qualities: it can be seen, heard, spoken, and written. We, therefore, have four groups of word memory cells, visual, auditory, vocal motor and graphic motor. These are connected by afferent and efferent nerve fibers, connecting them together and with the association centers. This illustrates the organization of the special functions, as they combine the individual sensations in a more highly organized cell and forces us to conclude that this progressive organization does not stop until the entire system is dominated by one cell and organized as a whole. We see in this the evolutionary process tending to organization, as it progressively combines the various bodily functions under the dominance of its most highly developed cell—a cell which receives the entire sensory inflow and from which probably emanate those impulses which constitute our volition. Due to the intensity of the reactions in this cell and the extreme complexity of its structure, it has probably long since past beyond the realm of organic and entered the sphere of psychic. (The term psychic is used here to mean word thought).

The Soul as a Word Thought

Herbert Spencer says, "The permanence of that consciousness of differences and likenesses is the warrant for asserting that differences and likenesses exist." He distinguishes between sensations and ideas and says "that out of the process comes the product of the supreme consciousness of object and subject, ego and non-ego."

But in the unicellular animal of the Archeozoic era, thought was necessarily confined to sensations or ions and these, grouping with the atoms of the cell, resulted in molecular thought, ego, and the reactions which caused the cell to appropriate objects to the good of self. Finally, two positive poles or nucleoli developed, which repelled each other and the cell divided into two cells. Here the highest development and characteristics of the cell were conveyed to its offspring. The process continued through the ages, each cell receiving certain characteristics from its parent cell and developing its own peculiar traits as a result of the particular form of energy and elements appropriated. Gradually, it developed through the Proterozoic, Paleozoic and Mesozoic eras into the various tissues and organs of the body, until in the late Genozoic era, or Miocene time, it had developed into the animal man, containing a brain, in which molecular thought, in the supreme ego brain cell, had reached a very high and complex development and over which this most highly developed cell dominated. Sir Ray Lankester calls attention to the fact that in the Miocene time there was a great increase in the size of the brain in several mammal types, and J. A. Thompson says, "This may have implied that differentiation of the rest of the bodily system could not profitably go much further."

We find Cro-Mangan man with a brain developed to the verge of intellect and Paleolithic man displaying a positive intelligence, so that cultural ideas were actually recorded some twenty-five thousand years ago, as found upon the walls of the caverns in the Dordogne region, the Bas Pyrenees and the northern coast of Spain, according to the elaborate



work of LlAbble, Bruel, Osborn and others. Conditions existing at this time are vividly portrayed by H. G. Wells in his brilliant work, "The Outline of History." The sensations, perceptions and conceptions, finally developed the supreme ego brain cell into the highest possible organic tissue, through repeated reactions and appropriation of energy, so that the molecules composing the cell gradually fused into one molecule, just as the various elements in the inorganic compound blended into one protoplasmic cell, and as the transition from inorganic to organic occurred, so now the transition from organic to psychic is accomplished. The reactions in this cell are similar to those of the unicellular animal but on a much higher plane. Here we have only one extremely complex molecule and the reactions are necessarily atomic, while in the unicellular animal, composed of the various elements, the reactions were molecular. Then since the reactions are necessarily atomic, we can only conceive of the gradual blending of the atoms to form atomic, psychic or word thought, as a prerequisite to the state of man. This atomic blending, or atom complex, is probably what Diogenes of Apollonia, called the soul, since it is an extremely complex atom or word thought, comprising sensations, ions or life and is beyond the power of physical death. For, as J. Arthur Thompson says in "Animated Nature," "Unless we have quite mistaken evolution, it implies an emergence of novelties, it is like original thinking." This transition probably first occurred in the Psychocene or present era.

Richard S. Lull, of Yale University, in his lecture, "The Antiquity of Man," quotes Dr. John Lightfoot, a noted authority, as saying, "Man was created on the 26th of October, 4004 B. C. at 9 o'clock in the morning," so I mention this as the possible date of the first occurrence of atomic, psychic or word thought, and the time when man passed through the transitional stage from organic or animal man to atomic or psychic man. From what has been said, it is evident that the soul or atom complex comprises all the sensations, perceptions and conceptions affecting the life of man, from the first sensation of the unicellular animal of the Archeozoic era to the man we know today. It is an atom complex comprising thought, love and life, or sensations blended into word conceptions, that tiny spark of divine presence, reflecting the image of its creator in the mind of man. This is in accord with the Scriptures which says, "In the beginning was the Word and the Word was with God, and the Word was God." (John I, 1).

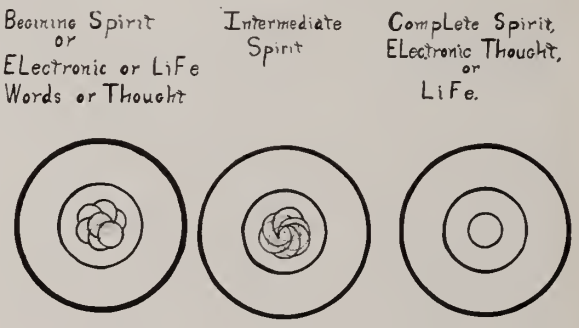
"So God created man in His own image, male and female created He them." (Gen. I, 27). This psychic, word or soul thought began to assert itself and man became conscious of something he had never known before, the duel personality of man, egò and soul, organic and psychic, and began to discriminate between right and wrong, good and evil, the love of self and a love for others. The realization of this duel personality probably led Shakespeare to give Puck the power of transformation in his "Midsummer Night's Dream," and Stevenson to write "Dr. Jekyl and Mr. Hdye."

We recognize that certain cells of the brain are more highly developed than others and that the variation in development determines the function and character of the cell; that the more highly developed cells dominate the cells of lower type. This fact is very evident in tracing the development of the nervous structure through the sponge, sea-anemones and vertebrates and it is indeed illuminating to find in man the supreme blending of the age long sensations, in the conception of soul.

As to just what part the endocrine system plays in this most intricate mechanism is not definitely settled but its manisfestations are many and varied. Certain hormones certainly

have a profound effect upon the nervous system and consequently upon personality. It is possible that these hormones, circulating through the blood, produce through their influence upon the nervous system, sensitivenesses, idiosyncrasies, or psychological and physiological distaste for certain stimuli, similar to those produced by proteins and thus change the reaction of the body. Certain psychological phenomena seem to have a similar action in producing various mental impressions, but sometimes even combine these psychological phenomena with physiological manifestations, as in fright—a purely psychological impression but invariably accompanied by physiological manisfestations, such as, dilated pupils, digestive disturbances, nausea, vomiting, increased peristalsis, emptying of the bladder, rapid pulse, chill bumps, hair raising and others. Certain chemical combinations produce these effects by stimulating the brain tissue, as very ably and beautifully described by Dr. Wholey in his treatise on morphine habit, in *The Journal of A. M. A.* of August 2nd, the reaction in the brain taking place without the immediate consciousness of the chemical change but with a consciousness of the physiological effect. In the same way, certain external sensations, stimulating a re-grouping of the implanted impressions, may take place without the immediate consciousness of the mental reaction but with a consciousness of the physiological manifestations. The consciousness is directly proportional to the duration and inversely proportional to its intensity, within certain limits, and the positive and negative phases blend at both extremes. In this light, fear may be defined as the reception by the cells of disagreeable or opposing sensations or ions in intensified forms. The reactions resulting stimulate past impressions and our physical acts are governed by a blending of these impressions. The consciousness of the past impressions depends on the duration and intensity of the stimulus. Where these impressions are that of detriment to self, we develop obedience for the good of this self, but where the past impressions are devoid of detrimental execution, we develop defiance by blending the sensations from these impressions. This last phase develops into what we term bravery, exaggerated defiance, or lack of fear. The two conditions may alternate and vary in degree, depending upon the past impressions and type of stimulus.

I have gone into these details because this principle is applicable, not only to fear, but to all the sensations which constitute our volitions. It is true of pleasing and disagreeable sensations; like and dislike; love and hate; each of these being sensations of the same type but of varying degree, duration and intensity. The pleasing sensation of rubbing becomes a painful sensation on scrubbing, love turns to hate, etc. We thus develop the opposite sides of our nature, not only as a result of its chemical composition or predisposed nervous organization but in consequence of the positive and negative ions or sensations received from the outside world. The highest attributes of man, as love, truth, honor, sympathy, knowledge and justice, evolve and are modified from and by the sensations of external origin, stimulating a regrouping of the predisposed impressions. We therefore find that the more frequent the repetition of these qualities, the more prominent this phase of our personality becomes. Our minds, intellect and souls are developed from the sensations. Each word we hear, each thing we see, feel, smell, or taste deposits ions in the brain cells and adds to the complexity of its structure, while developing our personality, but in all instances the elements themselves are those of the primitive sensations.



#4.

The mind of man is never absolutely free but subject to restrictions, which continually recall the chemical background on which it rests. We can not confine ourselves to the physical side alone but must, if we hope for results, investigate the vagueness and inconsistencies of the psychic impressions, for it seems evident that psychic impressions actually produce chemical changes in the body and

these chemical changes are capable of producing psychic impressions. In man, in consequence of his dual personality, ego and soul, these phenomena may be modified in proportion to the development of this cell. The life of molecular thought is dependent upon the life of the chemical compound and its impulses are for the good of self or ego, but in psychic or soul thought we have a different condition. Here the thought consists of ions, energy, or life and is beyond the power of physical death, and its impulses are for the good of others. The love of self has developed into a love for others. The fear which dominated the ego is transformed into a love which dominates the soul. Ernest Haeckel says that every cell in the body and in nature is a soul cell and bases his argument upon a very sound reasoning, supported by known facts developed in paleontology, physiology, embryology, biology and psychology. In his "Riddle of the Universe," he says, "The soul of animal and man are the same, only they vary in degree," but he fails to recognize the importance of this variation in degree. The high degree of complexity involved in the human soul produces a new entity into the physical world, a transformation from molecular to atomic; just as a high degree of complexity in the protoplasmic cell produced a new entity into the organic world, a transformation from inorganic to organic. He traces psychic activities (in the broad sense), as sensations, irritability and reflex actions, from man through the various animals and back to the unicellular radiolaria, and shows the extraordinary power of memory in these tiny cells.

The Yogi philosophy teaches that each cell contains a minature life, which controls its actions and that these lives are really bits of intelligence but these bits of intelligence are subject to the subconscious and conscious mind. The chemical and electrical sides of these facts have already been explained and the experiments of Thedore Flechner and Ernest Weber, of Leipsig, further support the view presented and show that an important part of the mental activities can be measured and expressed in mathematical formulae, just as well as the other physiological processess.

Father Wasmann, in "Modern Biology and the Theory of Evolution," states, "The human soul, being a spiritual entity, can not be derived from matter, even by divine omnipotence;" but it seems clear from the works of Lamark, Huxley, Darwin, Thompson and others, that the evolutionary tendency in the organic realm is progressive and toward a higher complexity or type of cell. The lower organism, devoid of nervous structure, imparts its characteristics to its offspring by dividing its own body, but in the higher mammals, this is accomplished through the nervous system and the generative cells. The generative cells probably receiving the ions or sensations from the entire body through the highest brain cell thus impart the complex ions or characteristics of each cell of the body to the ovum or spermatozoon. The union of these results in an offspring of the same physical and mental type, but having its own particular kind of colloidal substratum and its own peculiar reactions as a result of the blending.

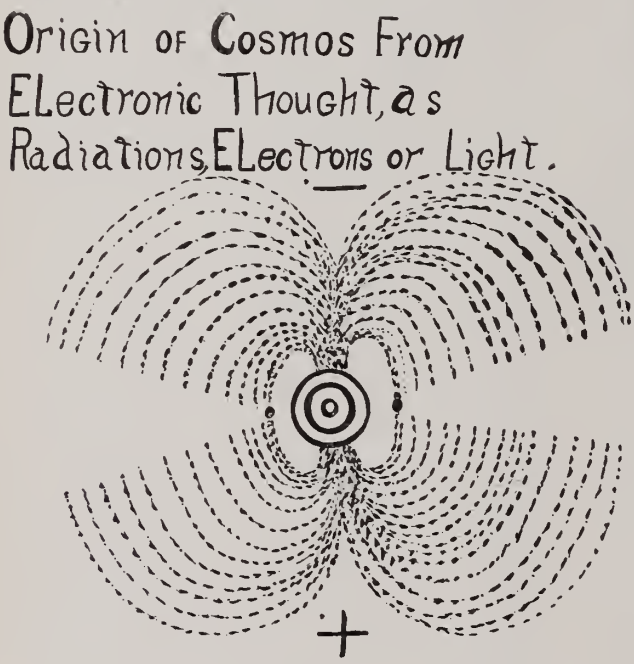
This idea does not conflict with that of Gaston and Weismann but is correlated with it, for as Thompson says, "The germ cells are those cells which carry the whole inheritance without allowing any of it to find expression until appropriate conditions and stimuli are forthcoming." It is also in accord with the Buddhistic Philosophy, for Guatama's idea was that each individual man is the sum of the effects of all the individual aggregates in the chain of migration, or the sum total of all previous fore-parents. H. Drinkwater says, "There is indirect evidence that particular unit characters are represented by the particular particles in the germ plasm, or by ultra microscopic differences of architecture, like the atomic theory in chemistry." During this development, man has gradually risen from the brute to the highly developed, intellectual and ethical citizen of today. But it seems that it was not until the Psychocene era that the entire sensory inflow, received by the highest molecular brain cell, converted it into an atomic complex or living soul. Thus the Lord God formed man of the dust (chemicals) of the ground and breathed into his nostrils the breath of life and he became (not was) a living soul." (Gen. II, 7).

Regardless of the genealogy of man, the fact remains that he is the highest of earth's inhabitants and probably the only thing that possesses a soul. What I have said reveals the continuity of the same processes occurring in all the brain and body cells of animal and man but the stage of development in the individual cells varies from the lowest type of organic to the highest type of psychic. If

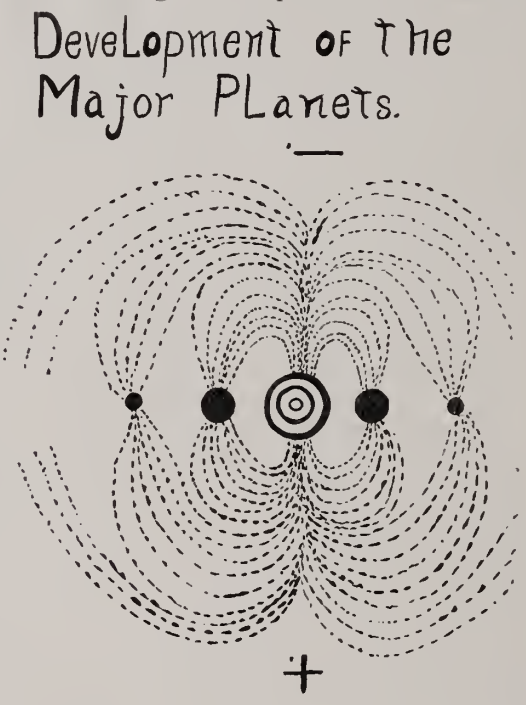
there was a transition from inorganic to organic, then the transition from organic to psychic is obvious.

Man's Spirit and the Cosmic Process

Professor Pringle Patterson said, "The nature of a power at work in any process is only revealed in the process as a whole, it is revealed progressively in the different stages but



X 5.



X 6.

can not be fully and trully known until the final stage is reached." And the great Russian embryologist, Von Bear said, "The history of nature is nothing but the history of the ever advancing victory of spirit over matter." This phase of the discussion leads us into the realms of metaphysics where our reasoning must be based on known laws of nature, supported by definite results of experimentations and facts of history. So let us follow the same processes, based upon the three great laws, and see the reaction in this highest of human cells, the soul. The psychic or soul complex continues to develop by blending the atoms into each other, until the final transition takes place, when further stimulation results in a blending of the ions or sensations, in forming electronic, spirit or life words. This is in accord with the idea of Jesus, who said, "The words that I speak unto you, they are spirit, and they are life." (John VI, 63).

At this stage of development man may exhibit the characteristics of ego, soul or spirit, depending upon the stage of development and the type of stimuli. This stage compares favorably with H. M. Tichenor's description of the unfolding of the spiritual mind according to the Yogi Philosophy, but as he says, "It seems that cosmic consciousness would be a more appropriate term, since it represents those flashes of illumination, which lift man above his normal self and bring him in touch with the whole of life, make him feel a sense of kinship to all life, high or low, great or small, good or bad." He says, "The most common feeling is that of possessing almost complete knowledge of all things, almost omnipotence, a sense of actual being and of having always been and of our immortality; together with a slipping away of fear."

Darwin expressed the view that the average of a stock can be improved as regards a particular character, by always breeding from those that show most of it; and Professor Pearson and his collaborators have concluded

that "The degree of dependence of the child on the character of its parentage is ten times as great as its degree of dependence on the character of its home." As I have shown, each offspring receives its characteristics and cells of definite composition from its parents and develops its own peculiar traits by appropriating energy and elements, as the process continues through the ages. It is, therefore, evident that the continual union of like minds must eventually result in an offspring of the genus type, and this we find to be true of the Hebrews who, following these laws and clinging tenaciously to the one idea of God, rapidly developed atomic thought or soul, to the point of electronic thought or spirit. We see the flashes of illumination in the writings of the prophets of old and Moses, peeping into the distant past, tells the story of creation, but there is only one character recorded in history who portrays the likeness and characteristics of a fully developed electronic thought, the man, Jesus of Nazareth, in whose virgin mother, the complex sensations or words of soul and spirit, reflected through the nervous system, blended in the ovum to form a new conception, the babe of Bethlehem. "And the word was made flesh and dwelt among us and we beheld his glory." (John I, 14).

Jacob Loeb has demonstrated the chemical fertilization of the eggs of the sea urchin and Leo Loeb the parthenogenic development of eggs in the ovary of the guinea pig. Both of these experiments conclusively demonstrate the possibility of parthenogenesis in man. Man in his mind thus passes through the last transitional stage, in which the psychic thought or word becomes electronic thought or life, and his highest developments complete the cycle and evolve back to the great cosmic consciousness or life of the universe.

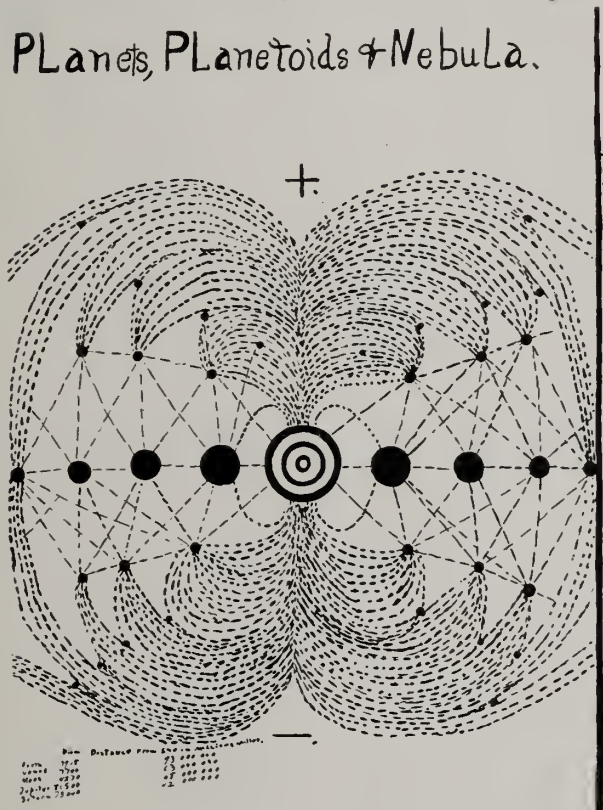


Fig. 7.

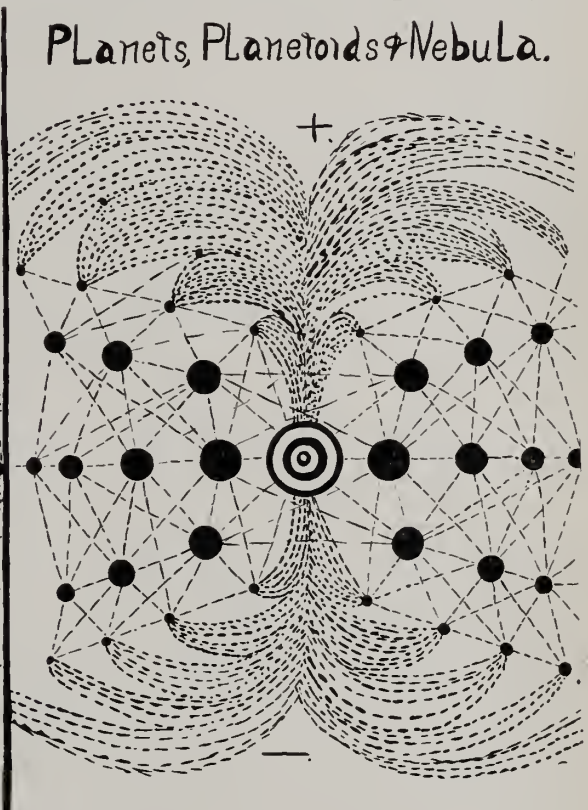


Fig. 8.

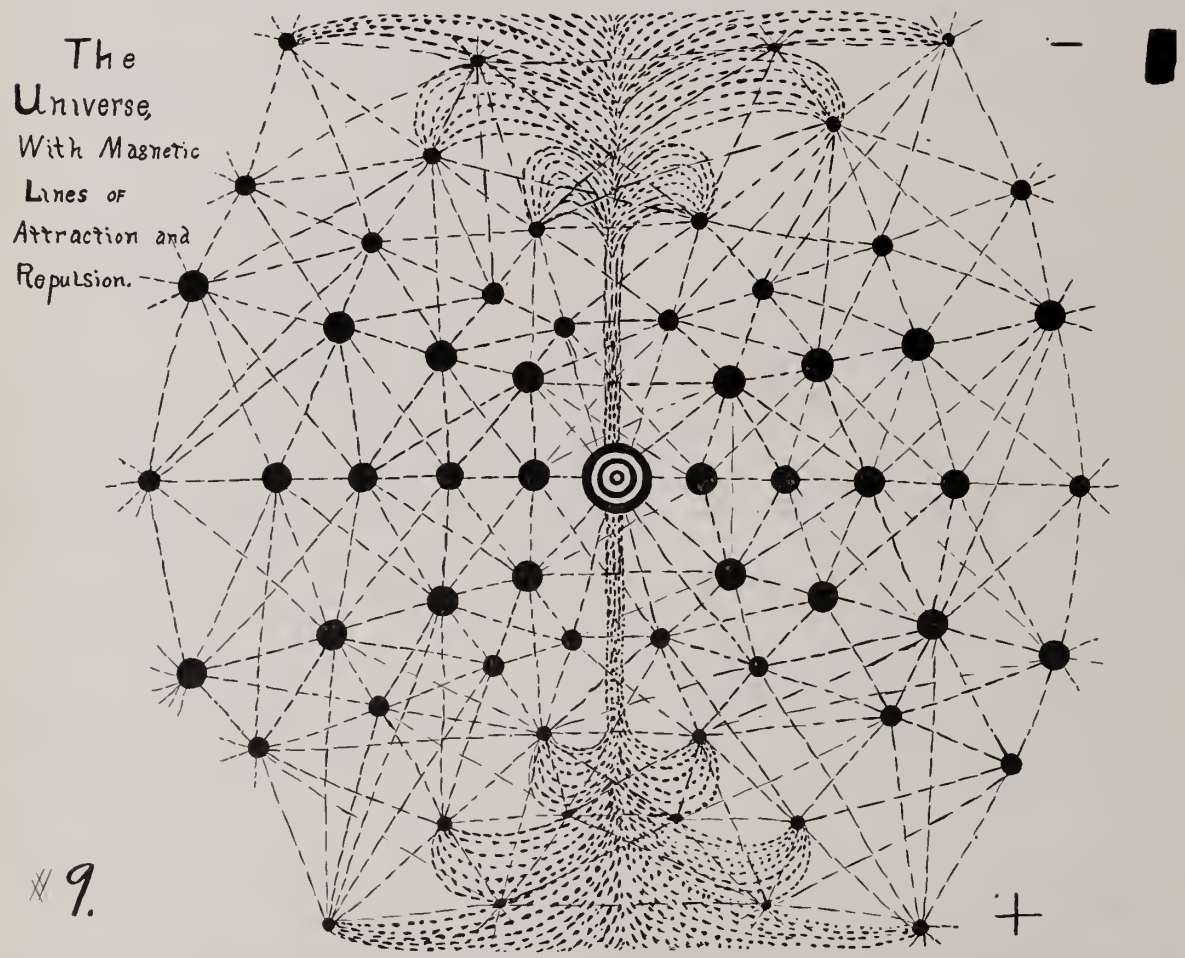
The Brahmin system of philosophy teaches that matter everywhere is permeated with spirit, and matter and spirit are God.

It seems clear from our discussion that all psychic, organic or chemical changes are dependent on the sensations or ions, since they not only cause the reactions but constitute the very elements of which they are composed. It is further evident that without the sensations

there could be no reactions or substance. Therefore, it is obvious that the origin of the cosmos is that which we find to be the highest attribute of man, cosmic consciousness, sensation, love, energy, light, life, word or God.

The great philosopher, Emanuel Kant, conceived matter to have been originally cold and diffused. From a position of rest it began to converge, under the influence of gravitation, to form the sun, from which the other planets were formed. Chamberlin adopts the hypothesis that the accretion was dominantly of dust-like or molecular particles, while LaPlace postulates an original nebula, as a very hot gaseous mass, extending beyond the orbits of the farthest planet and possessing a uniform rotation throughout, as if it were a solid body. As it lost heat, it contracted, leaving successive rings which gathered into the planets.

In the electronic thought of man we come to blend these postulates and realize that the numberless sensations composing the soul of man are all blended into one sensation and that this sensation or word is light, life and God, that which incorporates all opposing, contradictory and incompatible laws and blends them into one and the same thing, life or God. "In him was life and the life was the light of the world." (John I, 4). This panzodic conception of God is not that he embraces all matter or chemicals, but the idea is that he is the sum total of all the ions or sensations from which matter is derived. This idea is rapidly being accepted in regard to all life, that is, that the physical and chemical properties of all matter are determined by the number and arrangement of the positive and negative ions or sensations. Then, since the positive and negative are equal, they probably were originally so blended as to eliminate all force. If this hypothesis is correct, then the ions, words or sensations, being positive and negative, would conform to the magnetic law of attraction and repulsion, by which the ions or electrical



charges of like signs repel each other, while those of unlike signs attract each other. The forces of attraction and repulsion are found like those of gravitation and magnetism to decrease as the square of the distance increases. Applying this to the original ion or sensation, we conceive the radiations of ions or light, as the hot gaseous mass of LaPlace, grouping into the atoms or the diffused matter of Kant, and this into the molecular particles of Chamberlin. Then the reaction of the lighter elements, as hydrogen and oxygen, to form water and the deposit of the heavier ones to form plantules, planetoids, planets and earth, from which has evolved the highly developed physiochemical complex known as man, and in which the chemical elements, through molecular, atomic and electronic blending, evolve back to light and life and thus complete the cosmic process.

A PLEA FOR A MORE GENERAL USE OF DIPHTHERIA TOXIN-ANTITOXIN IN INFANTS AND CHILDREN.*

By T. D. JONES, M. D., Richmond, Va.

The fact that the lowered death rate from diphtheria continued for many years after the introduction of diphtheria antitoxin and then ceased, later actually increasing, indicated that there was a real need for some agent other than antitoxin to confer an active immunity upon the general population. The general use of antitoxin as a means of protection against diphtheria was not practical, because of the short period of immunity which followed its use. Park found that immunity conferred by the injection of antitoxin was only absolute for two or three weeks, and could only be re-established or prolonged by repeating the injections; but that each later injection conferred an immunity lasting only a week or ten days.

These facts stimulated those interested in the work to look for other agencies as a means to further reduce the mortality from this disease, and led to the attempt to actively immunize man by unaltered diphtheria toxin, or toxin weakened by chemical agents or modified by antitoxin. Roemer was among the first to demonstrate the frequent presence of antitoxin in the blood of normal individuals, and he found that 1/30 unit to each cubic centimeter of blood-serum was sufficient to produce immunity. Further investigations revealed that over fifty per cent of the population possessed this natural immunity. Animal experimentation demonstrated that a considerable percentage of several species of animals also possessed this natural antitoxin and could receive moderately large doses of toxin safely, respond quickly to the toxin stimulus, and make additional large amounts of antitoxin. It was found that newly formed antitoxin could be detected in horses having natural antitoxin within five days after the toxin injection, while in guinea pigs, which never have the natural antitoxin, it took from four to six weeks.

According to Park, the fact that toxin almost neutralized by antitoxin was capable of stimulating the production of antitoxin was accidently discovered. Because antitoxin can only be detected and measured by its characteristic of neutralizing toxin, the degree of neutralization was determined by the injection of a definite amount of the mixture in the guinea pig. This test left a certain portion of these test animals alive, because of their having received subcutaneously toxin which had received an over-neutralizing amount of antitoxin; and the attempts to use these treated guinea pigs several months later revealed the fact that many of them were immune.

In 1905, Theobald Smith made observations on guinea pigs which had received toxin-antitoxin, and published results of further studies two or three years later, discussing the possibility of using toxin-antitoxin in the active immunization of children. Six years later, Von Behring published the first results of the injection of neutralized toxin in a small number of persons. His results were inconclusive, because of the fact that Schick tests were not used before the injection and tests for antitoxin were made too soon after the injection to give any information of value. His real contribution was a demonstration of the safety of the injection in human beings. His example led Hahn shortly afterwards to inject 1,097 school children living in a district where diphtheria was endemic. The Schick test was not made use of in these cases so that the results were not definitely known, but there was no difference in the development of cases of diphtheria in the treated and untreated portions during the first two weeks following the injection, but after that time there was a definite lowering

*Read before the Richmond Academy of Medicine, October 28, 1924.

of the number of cases occurring in the treated portion.

The Schick Test

In 1909 Schick found that if a solution of diphtheria toxin was applied to the skin in the same manner that was used in the Von Pirquet tuberculin test, it produced a reaction in some cases similar to the tuberculin reaction. Following up the knowledge obtained by this experiment, he later developed the intracutaneous injection of toxin as a means of determining immunity.

The method of applying the test consists of the injection of 1/50 of a minimal lethal dose for a guinea pig weighing 250 gms. The injection is usually made on the flexor surface of the forearm. This amount is given in 2/10 c.c. of normal saline. The injection must be made in the skin, or else the toxin will be too rapidly absorbed to give a local reaction. A raised anemic area around the point of puncture indicates that the injection has been made into the skin. If the reaction is positive, a local area of redness and edema, about one to three c.m. in diameter, will appear within twenty-four to forty-eight hours (rarely seventy-two hours) which will increase for three or four days and subside in from seven to ten days, leaving a certain amount of pigmentation. If the individual has as much natural antitoxin as 1/30 unit to 1 c.c. of blood, no reaction will occur and the patient is immune. If the reaction is positive, less than that amount of antitoxin is present, and the patient is susceptible.

Pseudoreactions usually come on more promptly, sometimes in a few minutes. A larger and more poorly defined area is involved, they usually disappear within three days, no pigmentation following.

In 1913, Park began the practical use of toxin-antitoxin injections for the immunizing of children against diphtheria. He established the fact that the procedure was harmless, and that after three injections given from one to two weeks apart, eighty to eighty-five per cent of susceptible children were rendered immune in from one to six months after the injection. In an article published in 1922, he stated that the immunity in at least ninety per cent of the cases was for more than six years and probably for the remainder of life. In a comparison of 90,000 children inoculated and 90,000 controls who received no protection, four times as many cases of diphtheria developed in the control group as among the tested group.

In some ten thousand institutional cases where observations were most accurate for a period of from three to six years, diphtheria did not develop in any child who had received three toxin-antitoxin injections and no serious immediate or late after-effects were observed in spite of the fact that the 3L plus were used in all of these cases instead of the 1/10 L plus doses that are being used at this time. He describes the constitutional and local reactions as negligible in infants, slight and infrequent in the young child, moderate or rather severe in ten per cent of older children, slight, moderate or quite severe in a large percentage of susceptible adults, but states in an article published this year that with the new type of toxin-antitoxin, the local and constitutional reactions have been eliminated and that the immunizing effects of 1/10 L plus doses have been found to be equally as satisfactory.

Park and Zingher are now experimenting with a still newer preparation, toxoid, made by the addition of 1/10 of one per cent formaldehyde to toxin. The immunizing results of this agent compare favorably with toxin-antitoxin and may have some advantages, but the experimenters state in their most recent article that there is no urgency for substituting toxin-antitoxin by toxoid as both the new toxin-antitoxin and toxoid give good immunizing results with but slight local and constitutional reactions.

By use of the Schick test, it has been found that only about fifteen to twenty per cent of infants under six months of age are susceptible. Rugh and McClellan made observations on 100 mothers and their new born babies. All babies were less than seven days old. Ninety-five mothers and babies gave corresponding reactions, twenty being positive and seventy-five negative. In one instance, there was a positive in the mother and negative in the baby. Eight babies giving negative results did not receive breast milk or colostrum. The reporters, therefore, considered that the transmission by the placenta from mother to child of antitoxin bodies was a normal function.

Blum gave 2,000 infants three injections of toxin-antitoxin on the third, eighth and eleventh day after birth. There were no deleterious effects, but at the end of one year he retested 100 of these infants and found that only fifty-two per cent gave negative results.

His conclusions were that the combined effect of immature cells and over-neutralizing of the toxin-antitoxin present prevented any appreciable response to the injections. The highest susceptibility to diphtheria seems to be from six months to three years, being from sixty to seventy per cent, but the highest incidence of diphtheria is from three to five years, at which age only about forty to fifty per cent appear to be susceptible.

Safety of Toxin-Antitoxin Injections.—The antitoxin portion of the combination is more stable than the toxin, so that the sole objection to products kept a long time is that they are somewhat less effective.

The only serious accidents that have occurred, so far as is known, were due to an error through which an improperly tested product was sent out. The present regulations adopted by biological plants make a repetition of such accidents impossible. In February, 1924, students in two institutions in Massachusetts were inoculated with toxin-antitoxin. Forty-four suffered severe reactions afterwards. Investigations revealed that the serum had been subjected to very low temperature and was later thawed out. It was found that freezing disassociated the toxin-antitoxin. More recent investigation by Anderson, Leonard, and others showed that freezing did not increase the toxicity of the newer preparations (1/10 L plus dosage).

Steele, of New Haven, reported a case of serum sickness in the *Journal of the A. M. A.*, April, 1924. It was that of a boy five and one-half years of age. The third injection was given at 3:00 P. M., and a few hours later the child developed noisy, rapid breathing, and a maculo-papular rash, with chill. He was entirely well within three days after the onset of sickness. The 3L plus dose was used in this case.

Park found that a small percentage of children receiving three injections of toxin-antitoxin showed a mild degree of skin hypersensitiveness to subsequent serum injection, but he does not consider that this hypersensitiveness indicates a peril if later serum injections become necessary. He believes that the very small amount of sensitization produced in these cases is negligible.

Conclusions

1. There seems to be no contraindication to the use of toxin-antitoxin. The inoculation of nearly one million children in New York City, and hundreds of thousands in other sections of the country, without any serious effects reported is conclusive of the safety of the procedure.

2. The results obtained indicate the possibility of immunizing the entire population of the country.

3. Its use is not advised in infants under six months of age, although no bad effects result from it.

4. Because of the large number of children of preschool age (under five or six years) who are susceptible to diphtheria, and the difficulties of applying the test at this age, a preliminary Schick test is not advisable.

5. The Schick test, when properly done, is a reliable means of determining the susceptibility to diphtheria.

6. No child receiving three injections of toxin-antitoxin should be considered immune unless a negative Schick test is obtained afterwards.

7. Much can be accomplished by immunizing children of school age, as it is probably through them that the disease is spread. But owing to the high incidence of the disease and the high mortality in children of the preschool age, a large part of the responsibility of immunizing the general population rests with the general practitioner and the pediatrician.

Bibliography.

Wm. H. Park, M. D., "Active Immunization Against Diphtheria with Toxin-Antitoxin," Monthly Bull., Dept. Health, City of New York, 1922.

Wm. S. Keister, M. D., "The Value of Diphtheria Toxin-Antitoxin in Rural Communities," Va. Med. Monthly, Feb., 1924.

H. Merriman Steele, "Case of Serum Sickness Following the Use of Toxin-Antitoxin," Jour. A. M. A., April 19, 1924.

Edwin H. Place, M. D., Oxford Loose Leaf Medicine, Vol. V.

Holt and Howland, Diseases of Children, 1922.

John A. Kolmer, M. D., and Emily E. Moshade, M. D., Phila., "The Schick Toxin Reaction for Immunity in Diphtheria," Amer. Jour. Dis. Children, March, 1915.

John F. Anderson, M. D., and G. F. Leonard, M. D., "Effect of Freezing on Toxin-Antitoxin," Jour. A. M. A., May 24, 1924.

Borden, S. Veeder, M. D., St. Louis, "Active Immunization Against Diphtheria, by Means of Von Behring's Vaccine," and "The Diphtheria Toxin Skin Reaction," Amer. Jour. Dis. Children, Aug., 1914.

David Murray Cowie, M. D., Ann Arbor, Mich., Observations on the Intradermal and Repeated Intradermal Injections of Diphtheria Toxin, with Reference to the Schick Test," Amer. Jour. Dis. Children, Sept., 1916.

W. H. Park, M. D., and Abraham Zingher, M. D., New York, "Immunity Results Obtained with Diphtheria Toxoid (Modified Toxin), and 1/10 Lethal Plus Mixtures of Toxin-Antitoxin in the Public Schools of New York City." Amer. Jour. Dis. Children, Oct., 1924.

Medical Arts Building.

SOME CLINICAL MANIFESTATIONS OF PULMONARY TUBERCULOSIS.*

By FRANK B. STAFFORD, M. D.,
Blue Ridge Sanatorium, Charlottesville, Va.

For the last few years it has been interesting to note the constant decrease in the death rate of tuberculosis throughout the United States. This may be attributed to many factors, some of which are: General health education, the realization of the necessity of personal and industrial hygiene, increasing attention to the health of children, better living and working conditions, and earlier and more accurate diagnosis. In spite of the fact that the mortality in this State is being lowered each year, there continue to be a large number of people who do not seek medical advice until they are hopelessly advanced with the disease and little can be accomplished in the way of treatment. Such conditions are appalling, and it behooves us to analyze the situation and take the necessary steps to minimize its occurrence. This task, however, is by no means an easy one, and many factors must enter into its consideration and successful application. The educational program of the public must go on, the contact and suspect cases must have routine and systematic examinations, and finer points in diagnosis must be emphasized if the morbidity, as well as the mortality, is to be reduced and these people restored to a life of usefulness. No one can be proud of a diagnosis when he is forced to tell the patient that the disease has progressed beyond the point where anything can be done, and that he is doomed to a life of misery and invalidism. On the other hand, if the lesion is slight with only few constitutional manisfestations it is a real pleasure to assure the patient that the chances for recovery are good if he is willing to obey instructions and begin treatment at once.

The prognosis of tuberculosis does not in every case depend upon the extent of the lesion in the lungs. A patient may have an involvement of both upper lobes with a small amount of cavitation and still look and feel well and have no clinical evidence of the disease. Unless there is a marked destruction of the lung tissue, it is the clinical observations, such as temperature, loss of weight, etc., that should guide one in saying how long the period of treatment should be and what the chances are for complete restoration of bodily functions. Many cardinal points come up here for consideration, all of which are important; but time will not permit their discussion. This paper will deal only briefly with early diagnosis, treatment and some factors responsible for relapse, or reactivation of symptoms and signs.

In the diagnosis of this disease in its earliest manifestations there should be a thorough analysis of the following points: (1) A complete history, including symptoms; (2) Physical examination; (3) Laboratory tests; (4) X-ray examination. The history must be gone into thoroughly. This is time-consuming and laborious, but will reveal many important factors bearing on the case and will often be the real means of establishing a diagnosis—"Surely the pen is mightier than the stethoscope if applied properly." Local symptoms, such as pleurisy, hemoptysis, cough, and expectoration, and constitutional manifestations, such as afternoon rise in temperature, loss of weight, night sweats, anorexia, and languor, all have an important bearing. The history of wet pleurisy should always be considered as being due to tuberculosis, until proven otherwise and, from our statistics at Blue Ridge Sanatorium, five to six per cent of admissions have had this. Dry pleurisy, or pain in the chest, when not definitely accompanied by pleural friction rub is of no special diagnostic value and may be the result of some other disease. The presence of rales in the chest, however, is of importance and, when heard, usually means that the patient has tuberculosis. By this is meant moderately coarse rales, heard during inspiration following cough, in one or both apices. When such physical signs are present, the X-ray will invariably show a parenchymatous infiltration of unmistakable origin. The presence of tubercle bacilli in the sputum naturally completes the diagnosis. It might be said here that, regardless of whether other symptoms are present, if the patient has any cough and expectoration, a specimen should always be sent to the laboratory. In most every community there is a hospital or laboratory equipped for doing this kind of work. The State Board of Health will gladly make these examinations gratis and will

*Read by invitation at the meeting of the Alleghany-Bath Counties Medical Society, at Hot Springs, Va., November 14, 1924.

send a container on request. This requires very little time, and certainly the patient should have the benefit of this information. It is hardly worth while to say that one negative sputum examination in the presence of definite signs and symptoms does not exclude the disease; even in far advanced cases, where the diagnosis is beyond question, the sputum may be repeatedly negative. Of a hundred and seventy-two cases now in the Sanatorium, fifty-five per cent of these show the presence of tubercle bacilli in the sputum. This, of course, includes minimal, moderately advanced, and far advanced cases. In every instance where the sputum was positive, we were able to find other signs and symptoms that were quite sufficient to justify the diagnosis. A further observation has been made; the patient, who after the treatment has been well established, continues to dispense the bacilli in the sputum, usually has an extension of the disease and a bad prognosis.

By further observation it will be noted that the presence of a slight afternoon rise in the temperature, cough, general malaise, loss of weight, and anorexia strongly suggest pulmonary disease; but pleurisy with effusion, hemorrhage, rales heard after cough in an apex, are sufficient to establish a definite diagnosis: in fact any one of the latter may be sufficient. Furthermore, when tubercle bacilli appear in the sputum or hemorrhage has taken place, it means that the disease has advanced to the point of producing a parenchymatous lesion and requires not only a longer period of treatment, but the patient has less chance for complete recovery. A point that needs further emphasis is the correlation of the X-ray with the clinical data. No chest examination is complete without stereoscopic films, and what internist has not seen cases from whose history and physical examination nothing could be definitely found, only to be swept off his feet by a startling report from the roentgenologist of the presence of early tuberculosis? The X-ray, of course, has its limitations and must be studied and compared with signs and symptoms in an harmonious manner and along educational lines if grave mistakes are to be avoided. "Fanciful" and "visionary" interpretations must be avoided. If early lesions are to be diagnosed and errors in X-ray work minimized it is quite essential that the operator have some knowledge of the pathology and immuniology of tuberculosis as well as the histological anatomy of the lungs. We do not expect the X-ray to tell us whether the lesion is active or inactive, whether the patient is going to get well, or how long treatment will be required, but to assist with the diagnosis only.

The prognosis of the disease will naturally depend upon several things, the most important of which are early diagnosis and treatment. Our experience has been that the smallest amount of involvement in the chest should have from six to twelve months of absolute rest and relaxation. By this is meant that the patient should be put to bed in a quiet place in the open air away from all business cares and responsibilities and be made to feel that his first duty to himself and his people is to get well. It goes without saying that this can be best carried out in a sanatorium. Even after this period, for two or three years, and in most cases the rest of their lives, they must take every precaution, or there is great danger of relapse. It must be remembered that tuberculosis is usually a chronic disease which is characterized by alternating periods of quiescence and exacerbations, and one is not often as well as his or her feelings would indicate. It takes time to accomplish results and certain sacrifices must be made. The disease is not going to change to suit the habits of the patient, but the patient must regulate his or her life to that of the disease if he or she expects to prosper and win over its deceit.

About seventy-five per cent of the minimal cases will get good results if the proper treatment is given, and by careful living, periodical examinations, and advice, be able to return to work with little danger of recurrence of the trouble. With the far advanced cases there can usually be no hope for a complete restoration to normal functions and the patient must be contented with a partial repair and be spared the usual exertions of trying to make a living for himself.

The following case histories will illustrate the marked tendency to a relapse if proper precautions are not taken and the orders of the physician carried out.

Case 1.—Woman, age 21 years, occupation, pupil nurse, in January, 1923, was admitted to a sanatorium in Asheville with pleurisy with effusion and a small amount of exudation in left apex. After remaining there for eight months she was discharged as "apparently arrested" with no physical signs, or X-ray findings, and permitted to enter a training school

for nurses. At the time of her admission to the training school, October, 1923, she was apparently in excellent physical condition. No symptoms of tuberculosis were present, she was up to her normal weight and feeling well. On physical examination there was evidence of a thickened pleura at the left base and a small amount of fibrosis in the apex of the left lung. The interpretation of the stereoscopic X-ray plates taken at this time was as follows: Right lung: Negative except for slight thickening and small amount of beading along the course of the ascending trunks. Left lung: Above the third rib, anteriorly, the trunks are heavy and extend to the periphery, and well-defined, minute, calcified areas are studded along their course. The costo-phrenic angle is partially obliterated and some clouding is noted in the extreme base which is thought to be due to a thickened pleura. Before discharge from the sanatorium in Asheville, this patient was given definite instructions on how to live. She was told that she must live a systematic, routine life, avoiding all unnecessary physical exertions, such as, dancing, swimming, and hiking and that she must rest regularly and eat a liberal amount of good, wholesome food. When she took up her duties as pupil nurse these points were further emphasized to her. For the first three or four months she obeyed these suggestions and during that time gained twenty pounds in weight, but the prosperity was too much for her. Soon she became careless and would eat only the things that her finicky appetite called for, would not rest when off duty, began to dance and swim. At present there is a definite parenchymatous involvement of the left upper lobe and medium moist rales can be heard after cough to the third rib in front and to the fifth dorsal vertebra behind. She has been taken off duty and put to bed.

Case 2.—Woman, aged 27, occupation, graduate nurse. As a child and during the period of adolescence she was undernourished, had a poor appetite, and would eat only the things she liked best. In 1915, at the age of eighteen, she was diagnosed as having incipient tuberculosis. She spent six months in a sanatorium and was discharged as greatly improved. She returned home and continued the treatment there according to instructions for three years before taking up nursing. In October, 1923, while nursing, she had an attack of pleurisy. For two or three years previous to this she had discontinued her rest periods, attended many dances, was up late at night, took much strenuous exercise, and ate very little nourishing food. She would often go all day without eating more than one meal, and even then "mincing" over her food, discarding the things that she did not like. Soon after the attack of pleurisy, she reported for physical examination and X-ray. No moisture could be found on examination, but a small amount of exudation was present in the right apex. She was advised to stop work and take treatment, but was feeling better at this time and decided to return to work. In April, 1924, she returned for another examination and X-ray and at this time she had definite rales, heard after cough, in the right apex, and a more pronounced lesion on the X-ray plates. At this time she was admitted to the sanatorium and put to bed. After three months of complete rest in bed, it was found that the lesion had continued to spread and was beginning to break down and cavitate. The lung was then collapsed by artificial pneumothorax, (plates made showed collapsed lung). Sufficient time has not elapsed to say what results will be accomplished by this procedure.

Case 3.—Male, aged 28. In November, 1923, had pleurisy with effusion in the left side (previous to this was perfectly well except for a run-down condition). At this time 3,500 c.c. of straw-colored fluid was aspirated. Microscopic and guinea pig inoculation negative for tuberculosis. For six months following the pleurisy the patient spent the greater part of his time in bed, and during this period gained about twenty pounds in weight. After returning to work, he worked only in the morning and devoted the remainder of the day to rest and relaxation. After keeping up this schedule for a time, he did not feel as well as he desired, so in May, 1924 I saw him for the first time. On physical examination there was evidence of a small amount of fibrosis in both apices with a thickened pleura at the base. The X-ray, however, in addition to these, showed some involvement in the left apex which strongly suggested activity. He was told that this involvement was tuberculous in nature and was advised to give up his work for an indefinite period and go to a sanatorium and take treatment. This he refused to do and continued to work half-day and take the treatment the remainder of the time at home. In September he came for another examination, and, with the stethoscope, no extension of the

trouble could be made out, but a rather pronounced exudation in both apices was seen on the X-ray plates. In spite of this extension of the trouble he was not running any symptoms and stated that he was feeling well. Beyond a doubt his involvement is spreading and unless he agrees to give up and take the treatment as he should, he may soon be in a hopelessly advanced condition.

Discussion of Cases

These three cases are reported because they illustrate fully the points I wish to bring out in this paper. First, the diagnosis of early tuberculosis is by no means always an easy task. Many cases come up for consideration that require not only skill, but time if errors are to be avoided. Two of these cases you will note had as their onset pleurisy with effusion and practically no other indications of disease for several months. None of them had any expectoration, and a sputum examination could not be made. It is seen that the X-ray revealed definite trouble in each case when it could not be found on physical examination and even before sufficient symptoms had developed for the patients to feel ill. A study of the stereoscopic plates demonstrated the necessity of serial pictures for comparison and study.

All of these cases disobeyed medical advice and were not willing to take treatment until there was definite physical impairment. They indulged in pleasures, which called for fatigue and undue physical exertion, and in this way undermined and lowered their resistance and made a relapse more likely. The necessity for proper food and nourishment is appreciated not only to prevent a return of the disease, but its development as well. Many poorly developed and undernourished children are targets for the disease and will surely develop it unless proper steps are taken to correct it. Mothers must be taught how to feed their children and emphasis given to rest periods, then their bodies will be stronger and more disease-resisting.

Proceedings of Societies

The Virginia State Board of Medical Examiners,

At its examinations held in Richmond, in December, granted certificates to practice medicine in Virginia to twenty-four doctors. There were no failures except with those taking the partial examinations. Those obtaining certificates are:

Dr. Anthony D. Amerise, Pardee, Va., Jefferson Medical College, 1922.

Dr. E. Osmund Barr, Charlottesville, Va., University of Virginia, 1924.

Dr. Numa D. Bitting, Durham, N. C., Jefferson Medical College, 1907.

Dr. Wilbur M. Bowman, Petersburg, Va., University of Virginia, 1924.

Dr. W. Preston Burton, Covel, W. Va., Jefferson Medical College, 1923.

Dr. Leroy A. Calkins, Charlottesville, Va., University of Minnesota, 1919.

Dr. Harry G. Camper, Welch, W. Va., Baltimore Medical College, 1912.

Dr. Samuel Conway Crow, Wayne Co., Mich., Michigan Medical School, 1898.

Dr. Lewis T. Cosby, Jr., Abingdon, Va., Medical College of Virginia, 1901.

Dr. Clara K. Dickinson, Marion, Va., Woman's Medical College of Pennsylvania, 1923.

Dr. Zenobia G. Gilpin, Richmond, Va., Howard University, 1923.

Dr. Charles O. Harris, Washington, D. C., Howard University, 1913.

Dr. Vincent Hermandez, Yorktown, Va., University of Georgetown, 1918.

Dr. Alfred B. Hodges, Portsmouth, Va., College of Physicians and Surgeons, Columbia University, 1919.

Dr. Ulysses L. Houston, Washington, D. C., Bennett Medical College, 1912.

Dr. Thaddeus E. Jones, Portsmouth, Va., University of Pennsylvania, 1924.

Dr. William Lueders, Jr., Harrisonburg, Va., University of Maryland, 1920.

Dr. Emanuel Newman, Richmond, Va., Rush Medical College, 1922.

Dr. J. R. Parker, Clinton, N. C., University of Maryland, 1898.

Dr. William A. Porter, Norfolk, Va., McGill University, 1921.

Dr. Walter G. H. Pott, Norfolk, Va., University of Virginia, 1917.

Dr. Ernest F. Slater, Portsmouth, Va., University Medical College, Kansas City, Mo., 1899.

Dr. Nelson W. Sisson, Orange, N. J., University of Virginia, 1924.

Dr. Benjamin D. Turnman,* Richmond, Va., American School of Osteopathy, 1916.

*Dr. Turman, osteopath, was previously licensed to practice in the State, but allowed to take the examination to qualify for surgery.

The Russell County Medical Society,

At a meeting held on January 7, elected Dr. E. P. Whited, Honaker, president for the ensuing year, and Dr. C. B. Greear, also of Honaker, secretary-treasurer. The attendance was good and interesting and highly instructive case reports were given by Dr. Daniel Trigg, of Lebanon, and Dr. S. C. Couch, of Cleveland. These cases were discussed at length and those present stated that they had derived much benefit from the meeting.

Doctors attending the meeting reported a number of cases of "flu" in their practice, but without many complications, to this time. Dr. Kemp Gilmer, of Lebanon, reported some typhoid fever in his practice, complicated with hemorrhages.

It is conceded that no county should be without a highly organized medical society, not only for the benefit to the physician but also for the interests of the respective communities. The county medical society is the next best work to that of taking post-graduate study and every physician should be a member of his local medical society, or he is missing an opportunity he can ill afford.

C. B. Greear, *Sec'y.*

The Lynchburg and Campbell County Medical Society

Held its meeting for the election of officers for 1925 at the Piedmont Club, Lynchburg, December 8th. Dr. Hunter B. Spencer was elected president, Dr. W. S. Ferguson vice-president, and Dr. F. Musgrave Howell secretary-treasurer.

The first monthly meeting of the new year was held on January 5th, at which time Dr. Dean B. Cole, of Richmond, read an interesting paper on "The Determination of Activities in Tuberculosis." The meeting was well attended.

The Dinwiddie County Medical Society,

At its meeting in December, elected the following officers for the ensuing year: Dr. D. C. Mayes, Church Road, president; Dr. George W. Fultz, Butterworth, vice-president; and Dr. William C. Powell, Petersburg, (re-elected) secretary-treasurer. Drs. W. I. Prichard and A. B. Sloan were elected members of the Society.

Special Meeting of Norfolk County Medical Society.

Among the customs of the Norfolk County Medical Society is that whenever a fifth Monday occurs in a month, the program for that evening is directly under control of the president. It so happened that on the 29th of December the Society was temporarily without a home, as its furnishings were in process of removal from the old to the new hall, so the president, Dr. R. L. Payne, secured the use for that evening of a commodious hall in the Parish House of Christ Church and, in conjunction with the Women's Auxiliary of the Society, entertained the members of both organizations to a social evening, a large part of the program being in the form of moving pictures, partly of a professional nature and partly showing the haunts and habits of many of the wild animals indigenous to our country. These were greatly enjoyed by all present, as were the refreshments which followed. The example set by Dr. Payne may well be emulated on some future occasions.

The Truth About Medicine

In addition to the articles enumerated in our letter of November 29th, the following have been accepted:

Abbott Laboratories:
- Tablets Benzyl Fumarate—Abbott, 5 grains.

Gilliland Laboratories:
- Diphtheria Toxin-Antitoxin Mixture 0.1 L+

Hynson, Westcott and Dunning
- Sealed Tubes Mercurochrome—220 Soluble 0.5 Gm.

Lederle Antitoxin Laboratories:
- Intracutaneous Tuberculin for the Mantoux Test.

Lehn and Fink:
- Corpus Luteum—L. and F. Desiccated
  - Capsules Corpus Luteum—L. and F. Desiccated, 2 grains.
  - Capsules Corpus Luteum—L. and F. Desiccated, 5 grains.
  - Tablets Corpus Luteum—L. and F. Desiccated, 2 grains.
  - Tablets Corpus Luteum—L. and F. Desiccated, 5 grains.
- Ovarian Residue—L. and F. Desiccated
  - Capsules Ovarian Residue—L. and F. Desiccated, 5 grains.
  - Tablets Ovarian Residue—L. and F. Desiccated, 2 grains.
  - Tablets Ovarian Residue—L. and F. Desiccated, 5 grains.
- Ovarian Substance—L. and F. Desiccated
  - Capsules Ovarian Substance—L. and F. Desiccated, 2 grains.
  - Capsules Ovarian Substance—L. and F. Desiccated, 5 grains.
  - Tablets Ovarian Substance—L. and F. Desiccated, 2 grains.
  - Tablets Ovarian Substance—L. and F. Desiccated, 5 grains.

Mallinckrodt Chemical Works:
- Mallinckrodt Tetrabromphenolphthalein Sodium Salt
- Mallinckrodt Tetrabromphenolphthalein Sodium Salt, 5 Gm. Ampules.

H. K. Mulford Co.:
Neorobin
Vacuum Sealed Tubes Neorobin, 1 grain
Vacuum Sealed Tubes Neorobin, 5 grains.
New York Quinine and Chemical Works:
Euquinine—N. Y. Q.
E. R. Squibb and Sons.
Bacillus Bulgaricus—Squibb.
Nonproprietary article:
Tetrabromphenolphthalein Sodium.

NEW AND NONOFFICIAL REMEDIES.

Iletin (Insulin—Lilly) U-80.—Five c.c. ampules containing 80 units of iletin (insulin—Lilly) (New and Nonofficial Remedies, 1924, p. 152) in each c.c. Eli Lilly and Co., Indianapolis.

Ampules Adrenalin Chloride Solution Rx 1, 1:1000, 1 c.c.—A solution of adrenalin chloride (New and Nonofficial Remedies, 1924, p. 117), one part in physiological solution of sodium chloride, 10,000 parts without preservative. Parke, Davis and Co., Detroit.

Ampules Adrenalin Chloride Solution Rx, 1:2,600, 1 c.c.—A solution of adrenalin chloride (New and Nonofficial Remedies, 1924, p. 117), one part in physiological solution of sodium chloride, 2,600 parts, without preservative. Parke, Davis and Co., Detroit.

Ampules Adrenalin Chloride Solution 1:1,000, 1 c.c.—A solution of adrenalin chloride (New and Nonofficial Remedies, 1924, p. 117), one part in physiological solution of sodium chloride 1,000 parts, without preservative. Parke, Davis and Co., Detroit.

Benzyl Succinate—Merck.—A brand of benzyl succinate—N. N. R. For a discussion of the actions and uses of benzyl compounds, see Journal A. M. A., Dec. 6, 1924, p. 1864. Merck and Co., New York.

Thigenol.—Solution Sodium Sulpho-Oleate-Roche.—A solution of the sodium salts of synthetic sulphooleic acid containing 2.85 per cent. of sulphur. Thigenol has the actions and uses of sulphoichthyolate preparations (New and Nonofficial Remedies, 1924, p. 350). The Hoffman-LaRoche Chemical Works, New York.

Sterile Ampules Mercuric Potassium Iodide, 0.017 Gm. (¼ grain).—A solution of potassium mercuric iodide obtained by dissolving red mercuric iodide 0.01 Gm., and potassium iodide, 0.01 Gm. in water, 1 c.c. Swan-Myers Co., Indianapolis (Journal A. M. A., Dec. 6, 1924, p. 1847).

Ergotole.—Extractum Ergotae Liquidum.—A liquid extract of ergot containing 19 per cent. of alcohol. It is standardized on the uterus of the virgin guinea pig so that a 1:2,500 dilution of ergotole has the same activity as a 1:20,000,000 solution of beta-iminazolyl-ethylamine hydrochloride. The actions and uses of ergotole are the same as those of ergot. Ergotole is also marketed in ampules containing 1 c.c. Sharp and Dohme, Baltimore.

Hypodermic Tablets Strophanthin 1/100 grain.—Lilly.—Each tablet contains strophanthin U. S. P., 1/100 grain. Eli Lilly and Co., Indianapolis.

Hypodermic Tablets Strophanthin 1/120 grain. Lilly.—Each tablet contains strophanthin U. S. P. 1/120 grain. Eli Lilly and Co., Indianapolis.

Hypodermic Tablets Strophanthin 1/200 grain. S. and D.—Each tablet contains strophanthin U. S. P. 1/200 grain. (0.325). Sharp and Dohme, Baltimore.

Ampules Ouabain 0.0003 Gm. (1/128 grain)—Lilly.—Each ampule contains ouabain crystallized—N. N. R., 0.0005 Gm. in 2 c.c. of a buffered, sterile normal salt solution. Eli Lilly and Co., Indianapolis.

Compressible Capsules Mercury Salicylate "Synthetic," 1 grain for Intramuscular Injection.—Mercuric salicylate 0.065 Gm. (1 grain) suspended in 1 c.c. of a mixture of benzoinated lard, 67 per cent.; peach kernel oil, 31 per cent.; camphor, 1 per cent.; phenol, 1 per cent. Synthetic Drug Co., Toronto, Canada.

Compressible Capsules Mercury Salicylate "Synthetic," 1½ grain for Intramuscular Injection.—Mercuric salicylate 0.1 Gm. (1½ grain) suspended in 1 c.c. of a mixture of benzoinated lard, 67 per cent.; peach kernel oil, 31 per cent.; camphor, 1 per cent.; phenol, 1 per cent. Synthetic Drug Co., Toronto, Canada.

Compressible Capsules Mercury Salicylate "Synthetic," 2 grains for Intramuscular Injection.—Mercuric salicylate 0.13 Gm. (2 grains) suspended in a mixture composed of benzoinated lard, 67 per cent.; peach kernel oil, 31 per cent.; camphor, 1 per cent.; phenol, 1 per cent. Synthetic Drug Co., Toronto, Canada. (Journal A. M. A., Dec. 13, 1924, p. 1923).

Novasurol.—The double salt of sodium mercurichlor phenyloxyacetate with barbital. Novasurol contains 33.9 per cent. of mercury. Novasurol is used chiefly as a diuretic. It has the advantage over mild mercurous chloride and other insoluble mercury compounds in that it is soluble and may be administered by intramuscular and intravenous injection. The best results have been obtained in dropsies due to cardiac disease. Some authors hold that soluble mercury compounds should be used for their diuretic action, only as a last resort when other drugs have failed. As an antisyphilitic, novasurol has generally been injected intravenously mixed with one of the arsphenamines. Novasurol is supplied in ampules containing 1.2 c.c. of a 10 per cent. solution. Winthrop Chemical Co., New York.

Euquinine—N. Y. Q.—A brand of quinine ethylcarbonate—N. N. R.—For a discussion of the actions, uses and dosage of quinine ethyl carbonate—N. N. R.—(New and Nonofficial Remedies, 1924, p. 267). New York Quinine and Chemical Works, New York. (Journal A. M. A., Dec. 20, 1924, p. 2019).

Tetrabromphenolphthalein Sodium.—The sodium salt of a dibasic dye, tetrabromphenolphthalein. Tetrabromphenolphthalein sodium is used for the roentgenologic examination of the gall-bladder. Following intravenous injection the substance appears in the gall bladder in sufficient concentration to cast a shadow to the roentgen ray. After injection, some of the patients may have unpleasant symptoms such as dizziness, nausea, various body pains, and fall in blood pressure. The use of tetrabromphenolphthalein sodium is still in the experimental stage and workers are cautioned as to the selection of types of cases in which it is indicated and its possible toxicity in large doses. To visualize the gall bladder, 4.5 to 5 Gm. is sufficient for a patient weighing 125 pounds or more, and should be reduced for patients weighing less. (Journal A. M. A., Dec. 27, 1924, p. 2095).

PROPAGANDA FOR REFORM.

Goiter Prevention.—Persons affected with thyroid disturbances have been aroused to the possibilities of relief that modern medicine offers, the public has been awakened to the problems that confront many of our communities, and the medical profession has been stirred to a realization of its duties to the public in demanding the institution of safe relief measures. The enthusiasm for relief measures must not be allowed to initiate the public into unwise or unwarranted practices. The fundamental concern of the health official is the prevention of endemic thyroid enlargement. In line with this the Cincinnati Board of Health Proposes to confine its work to prevention and will refer children known to have thyroid enlargement to their family physician. Iodized

table salt should not be regarded as a "cure all." It will probably not cure a simple goiter, and the primary purpose of the preparation is to aid in providing the iodin that is essential to the proper functioning of the thyroid gland in normal persons who compose the majority of the population. The exceedingly small quantity of iodin made available in this way must be skilfully supplemented by physicians when definite thyroid enlargement exists. (Journal A. M. A., Dec. 6, 1924, p. 1849.)

Chlorin in Respiratory Diseases.—In New York two clinics were established by the Health Commissioner to determine the efficiency of chlorin inhalations in the treatment of respiratory diseases. These clinics began active work June 1. They continued in operation until August 1, when they were closed because the results were considered unsatisfactory. It is reported that only 6.5 per cent. of 506 persons with various respiratory diseases reported themselves as cured. Fifty-three per cent. of the patients reported improvement, but the physicians in charge do not attach much importance to such reports since it is well known that patients with minor respiratory infections tend to improve by the very nature of their disease. It is evident that the physician who uses the chlorin treatment in his practice, must do so with the distinct understanding that he is using an unestablished method. (Journal A. M. A., Dec. 6, 1924, p. 1851.)

Benzyl Compounds.—The Council on Pharmacy and Chemistry reports on the therapeutic status of benzyl compounds. It was shown a few years ago that the papaverin group of opium akaloids caused relaxation and inhibition of smooth muscle fibre and it was suggested that this action was dependent on the benzyl grouping in the papaverine molecule. This suggested that possibly the same action might be secured from simpler benzyl compounds, and a number of benzyl esters were investigated. Soon the use of benzyl esters in medicine gained considerable vogue. They have been recommended in hypertension, asthma, angina, dysmenorrhea, biliary and renal colic and similar disorders. The council finds that extensive clinical use does not confirm the enthusiastic estimate of the early advocates. An inquiry addressed to a number of clinicians disclosed an almost unanimous opinion against the value of these preparations so far as most of the recommended uses are concerned. None had seen any action whatsoever in hypertension, nor had the blood pressure been lowered. None of the consultants had seen any effects from the use of benzyl esters in asthma, or in renal or biliary colic. Benzyl esters had apparently given relief in a certain number of cases of dysmenorrhea. A small percentage of patients with angina pectoris appeared to have been benefited by their use; also a few cases of intestinal colic, which might be explained by a carminative action. (Journal A. M. A., Dec. 6, 1924, p. 1864.)

"Prince Hough" Declared a Fraud.—For some time a seventy-year-old colored man has been swindling people through the mails from De Soto, Mississippi. He has gone under the name "Prince Hough" and "Dr. P. F. Hough." He represented that he could diagnose any disease by having his patient "spit on a piece of white cloth" and send it to him. He claimed that he would furnish medicine that would cure syphilis, tuberculosis and other conditions equally serious diagnosed by him by the white cloth method. The post office authorities investigated the fraud and debarred "Prince Hough" from the use of the mails. (Journal A. M. A., Dec. 6, 1924, p. 1864.)

The Danish Gold Treatment of Tuberculosis.—Hardly a year passes but that the announcement is made of some new method of treating tuberculosis. The most recent method to receive sensational publicity duly accorded any venture in the treatment of tuberculosis, is a preparation of gold advanced in Denmark under the name "Sanocrysin." At a meeting of physicians in Denmark, Professor Moellgaard, the originator of the remedy, described its production and its effects. Other physicians gave an account of their results with the treatment. Several deaths from the remedy were reported. It is stated that Professor Moellgaard was the most cautious of all who spoke. (Journal A. M. A., Dec. 13, 1924, p. 1928.)

Black Hair Dye.—No black hair dye can be considered safe and not injurious. Every chemical used for dying the hair black is a potential trouble maker. Some individuals who are not sensitized, may even use paraphenylendiamin for long periods without causing any disturbance, whereas others cannot use silver nitrate or pyrogallic acid. These facts should be given to the public and the user should assume the responsibility for the dermatitis which may follow. A person's sensitiveness to a given dye may be determined by its application to a covered portion of the body. (Journal A. M. A., Dec. 13, 1924, p. 1943.)

Valamin Not Accepted for N. N. R.—The Council on Pharmacy and Chemistry reports that Valamin is stated to be "Amylene Hydrate Iso Valerianate" and that it is a German product marketed in the United States by the American Kreuger and Toll Corporation, New York. Valamin is claimed to be a dependable sedative and analeptic. It is claimed that Valamin is a recent discovery which will restore valerian to favor with the medical profession. Valamin is not a recent discovery and the reports of its use do not indicate that it has any special value. The Council declared Valamin inadmissible to New and Nonofficial Remedies, because (1) the therapeutic claims are unwarranted and (2) because more than ten years of trial has failed to produce evidence that it is a useful addition to our materia medica. (Journal A. M. A., Dec. 13, 1924, p. 1941.)

Valerian Omitted From Useful Drugs and Amyl Valerate Omitted from N. N. R.—The Council on Pharmacy and Chemistry reports that for some years it has been viewing the claims for the therapeutic value of valerian and valerian preparations and substitutes with increasing skepticism. During the period 1915 to 1921, the Council questioned the claims made for a number of proprietary valerian preparations then in New and Nonofficial Remedies. In the end these products were omitted because they were off the market. Valerian has been retained in Useful Drugs because it is used to a considerable extent. This use, however, appears to be based on tradition. The Council reached the conclusion that there is no acceptable evidence for the therapeutic usefulness of valerian or the valerian substitutes now on the market. It, therefore, decided (1) to omit valerian from Useful Drugs; (2) to omit the general article "Valeric Esters" along with amyl valerate (the only preparation now in the book) from New and Non-official Remedies, and (3) to admit to New and Nonofficial Remedies no preparation which depends on valerian or its constituents unless satisfactory new evidence for its therapeutic value is submitted. (Journal A. M. A., Dec. 13, 1924, p. 1941.)

Hexylresorcinol ("Caprokol").—The Council on Pharmacy and Chemistry publishes a report on the experimental status of hexylresorcinol, a new urinary antiseptic discovered by Dr. Veader Leonard. Dr. Leonard has studied the effect of the oral ad-

ministration of a series of resorcinol derivatives on the action of urine towards bacteria. He found the normal hexyl derivative of resorcinol the most effective and reports animal and clinical trials with the drug. Hexylresorcinol was found to be practically without toxic action and when administered in adequate doses, found to render urine distinctly bactericidal, even when it is alkaline in reaction. Because of the strong bactericidal action of hexylresorcinol in either acid or alkaline urine, the rapid and continuous excretion over a considerable period of time following oral administration, and its low toxicity, it gives promise of proving a useful disinfectant of the urinary tract. However, the work of Dr. Leonard must be confirmed by other investigators before it can be accepted. A preparation of hexylresorcinol is to be marketed by Sharp and Dohme as "Hexyl-Resorcinol—S. and D.", or "Caprokol" in the form of pills. The drug as employed by Dr. Leonard, however, differs from the commercial product in that it is marketed in pill form, and it remains to be determined that these pills will produce the effects reported by Dr. Leonard. The Council reports that hexylresorcinol will be eligible for New and Nonofficial Remedies if its therapeutic usefulness is established by confirmatory clinical trials; in that case Hexyl-Resorcinol—S. and D. (Caprokol) will be accepted if the form in which it is marketed is found satisfactory and the advertising claims acceptable. (Journal A. M. A., Dec. 20, 1924, p. 2018.)

Succus Cineraria Maritima and Phytoline.—These are marketed by the Walker Pharmacal Co., which, like the Manola Chemical Co., appears to have been practically a subsidiary of the Luyties Homeopathic Pharmacy Co. In 1911 the Council on Pharmacy and Chemistry reported that the juice of a plant referred to as cineraria maritima was at one time supposed to be of value in the treatment of cataract and certain other affections of the eye, but that there was no evidence that the drug had any value. Cineraria maritima would long since have been relegated to the limbo of discarded and discredited drugs had it not been for the exploitation of succus cineraria maritima (Walker) by the Walker Pharmacal Co. The claims of the Walker Pharmacal Co. in regard to phytoline, divested of their mystery and improbability, suggest that this is a tincture of poke-berries. While Phytoline is advertised as a "Powerful Antifat," a hunter has reported the killing of fat pigeons whose gullets were filled with poke-berries. (Journal A. M. A., Dec. 20, 1924, p. 2041.)

Book Announcements

Operative Surgery. Covering the Operative Technic Involved in the Operations of General and Special Surgery. By WARREN STONE BICKHAM, M. D., F. A. C. S., Former Surgeon in Charge of General Surgery, Manhattan State Hospital, New York; Former Visiting Surgeon to Charity and Touro Hospitals, New Orleans. In six octavo volumes totaling approximately 5,400 pages with 6,378 illustrations, mostly original, and separate Desk Index Volume. Volume VI. completing the set, contains 989 pages, with 1,224 illustrations. Philadelphia and London. W. B. Saunders Company. 1924. Cloth, $10.00 per volume. Sold by subscription only. Index Volume free.

Successful surgery depends on surgical judgment plus exact technic. The latter may be acquired from books, and surely there has never been produced so great a work as Bickham's—the fifth and sixth volumns of which are now on our table. Individual authorship with a complete system of cross references has done away with the numerous over-lappings and omissions so characteristic of systems.

This master surgeon and scholar has evidently spent years in accumulating the material for this work. The 6,400 illustrations are the product of forty-six artists, working 27,780 hours—the equivalent of about twenty years for one person. With consummate fiedlity to detail the author has endeavored to embrace everything worth while pertaining to Operative Surgery.

But above all he has ever kept in mind the most important issue in every surgical operation—the interest of the patient. Bickham says it is greatly more to the surgeon's credit to avoid than to perform an operation—to arrest, or correct the lesion without, rather than through, operation. If these ideals could become more nearly universal, if surgeons were always more interested in the welfare of their patients than in doing spectacular operations, then indeed would surgery become what it should be—the most beneficent expression of human handicraft. H.

Essentials of Prescription Writing. By CARY EGGLESTON, M. D., Assistant Professor of Pharmacology, Cornell University Medical College, New York City. Third Edition, Revised. Philadelphia and London. W. B. Saunders Company. 1924. 32mo. 146 pages. Cloth. Price, $1.50 net.

The Practice of Pediatrics. By CHARLES GILMORE KERLEY, M. D., formerly Professor of Diseases of Children, New York Polyclinic Medical School and Hospital, and GAYLORD WILLIS GRAVES, M. D., Associate in Diseases of Children in the College of Physicians and Surgeons, New York City. Third Edition, Revised and Reset. Philadelphia and London. W. B. Saunders Company. 1924. Octavo of 922 pages, with 150 illustrations. Cloth. Price, $9.00 net.

Diseases of the Heart. By DR. HENRI VAQUEZ, Professor of the Faculty of Medicine of Paris. Translated and Edited by GEORGE F. LAIDLAW, M. D., Associate Physician to the Fifth Avenue Hospital, New York City. Introduction by WILLIAM S. THAYER, M. D., Johns Hopkins Hospital, Baltimore, Md. Philadelphia and London. W. B. Saunders Company. 1924. Octavo of 743 pages, illustrated. Cloth. Price, $8.50 net.

Manual of Psychiatry. For the Medical Student and General Practitioner. By PAUL E. BOWERS, M. S., M. D., Examiner in Lunacy, State of California; Lecturer in Neuropsychiatry, Post-Graduate Medical School of the University of California, Los Angeles. Philadelphia and London. W. B. Saund-

ers Company, 1924. Octavo of 365 pages. Cloth. Price, $3.50 net.

Pediatrics. By Various Authors. Edited by ISAAC A. ABT, M. D., Professor of Disease of Children, Northwestern University Medical School, Chicago, etc. Set complete in eight octavo volumes, totalling 8,000 pages with 1,500 illustrations, and separate Index Volume free. **Now Ready, Volume V.,** containing 865 pages with 373 illustrations. Philadelphia and London. W. B. Saunders Company. 1924. Cloth. Price, $10.00 per volume. Sold by subscription.

Child Health Library. By a GROUP OF PROMINENT SPECIALISTS AND SOCIAL WORKERS in New York City. Introduction by DR. HAVEN EMERSON. Robert K. Haas, Inc., Publishers. (Formerly, Little Leather Library Corporation), 218 West 40th Street, New York, N. Y. A series of ten books, vest pocket size, averaging about 100 pages each. Fabrikoid binding. Small book ends furnished with series.

The purpose of this series is to teach parents how to co-operate with the physician in promoting and preserving the health of the child. The series includes the following volumes:

I. Pre-Natal Care and the Baby's Birth.
II. Babies—Their Feeding and Care.
III. The Neglected Age—The Child from Two to Six.
IV. Dangers of the School Age.
V. Communicable Diseases of Childhood.
VI. Hygiene of the Mouth and Teeth.
VII. What Children of Various Ages Should Eat.
VIII. How Children Ought to Grow.
IX. Psychology of the Child.
X. Educational Problems.

A Textbook of Materia Medica for Nurses. By A. L. MUIRHEAD, M. D., Late Professor Pharmacology, Creighton Medical College, Omaha, Nebraska, and EDITH P. BRODIE, A. B., R. N., Instructor in Materia Medica and Therapeutics, Washington University School of Nursing, St. Louis, Mo. Second Edition. St. Louis. C. V. Mosby Company. 1924. 12mo. 190 pages. Cloth. Price, $2.00.

Anesthesia for Nurses. By COLONEL WILLIAM WEBSTER, D. S. O., M. D., Professor of Anesthesiology, University of Manitobo Medical School; Chief Anesthetist, Winnipeg General Hospital. St. Louis. C. V. Mosby Company. 1924. 12mo. 153 pages. Illustrated. Cloth. Price, $2.00.

Safeguarding Children's Nerves. A Handbook of Mental Hygiene. By JAMES J. WALSH, M. D., Professor of Physiological Psychology, Cathedral College, New York, and JOHN A. FOOTE, M. D., Professor of Diseases of Children, Georgetown University Medical School, Washington, D. C., with a foreword by HONORABLE HERBERT HOOVER. Philadelphia and London. J. B. Lippincott Company. 1924. Small 8vo. 272 pages. Cloth. Price, $2.00.

Developmental Anatomy. A Text-Book and Laboratory Manual of Embryology. By LESLIE BRAINERD AREY, Professor of Anatomy at the Northwestern University Medical School, Chicago. Philadelphia and London. W. B. Saunders Company. 1924. Octavo volume of 433 pages, with 419 illustrations, many in color. Cloth, $5.50 net.

Human Constitution. A Consideration of Its Relationship to Disease. By GEORGE DRAPER, M. D., Associate in Medicine at Columbia University, New York. Philadelphia and London. W. B. Saunders Company. 1914. 8vo. 345 pages, with 208 illustrations and 105 tables. Cloth. Price, $7.50 net.

Studies on the Morphology and Morphogenesis of Human Thoracopagic Monsters, with Special Reference to the Malformation of the Heart. Inaugural Dissertation, by FREDRIK YSANDER. Uppsala, 1924. Almqvist & Wiksells Boktryckeri. A.-B. Paper. 236 pages with plates.

Physical Diagnosis. By W. D. ROSE, M. D., Lecturer on Physical Diagnosis and Associate Professor of Medicine in the University of Arkansas. Fourth Edition. St. Louis. The C. V. Mosby Company. 1924. 755 pages, with 319 illustrations, 8vo. Cloth. Price, $8.50.

A Text-Book of Pathology. By WILLIAM G. MacCALLUM, M. D., Professor of Pathology and Bacteriology, Johns Hopkins University, Baltimore. Third Edition, thoroughly revised. Philadelphia and London. W. B. Saunders Company. 1924. 8vo of 1,162 pages, with 575 original illustrations. Cloth, $10.00 net.

A Manual of Obstetrics. By JOHN COOKE HIRST, M. D., F. A. C S., Associate in Gynecology and Obstetrics, Graduate School of Medicine, University of Pennsylvania; Associate in Obstetrics, School of Medicine, University of Pennsylvania. Second Edition, entirely reset. Philadelphia and London. W. B. Saunders Company. 1924. 12mo of 551 pages with 229 illustrations. Cloth, $4.50 net.

Concealed Tuberculosis or "The Tired Sickness." A Clinical Study Upon the Exhaustion Type of Hidden Tuberculous Infections. By GEORGE DOUGLAS HEAD, M. D. Philadelphia. P. Blakiston's Son and Company. 1012 Walnut Street. 12mo of 137 pages. Cloth. Price, $2.00.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery and the Various Specialties. By Leading Members of the Medical Profession Throughout the World. Edited by HENRY W. CATTELL, A. M., M. D., Philadelphia, and Collaborators. Volume IV. Thirty-fourth Series, 1924. Philadelphia and London. J. B. Lippincott Company. 1924. Octavo. Cloth. Illustrated. 308 pages.

Virginia Medical Monthly

FOUNDED BY LANDON B. EDWARDS, M. D., APRIL, 1874.
OWNED BY THE MEDICAL SOCIETY OF VIRGINIA.
PUBLISHED BY THE PUBLISHING COMMITTEE.

A. G. BROWN, Jr., M. D., Chairman, Richmond, Va.
B. R. TUCKER, M. D., Richmond, Va.
P. W. HOWLE, M. D., Richmond, Va.
E. L. KENDIG, M. D., Victoria, Va.
A. L. GRAY, M. D., Richmond, Va.
ALEX. G. BROWN, Jr., M. D., Editor.
AGNES V. EDWARDS, Business Manager and Secretary-Treasurer.

All correspondence regarding editorial matters, articles, advertisements, subscription rates, etc., should be addressed to the Journal.

All advertisements are received subject to the approval of the Council on Pharmacy and Chemistry of the American Medical Association.

Subscription Price: $2.00 per annum in advance.
Single Copies 20c.

Vol. 51 FEBRUARY, 1925 No. 11

Editorial

The Cerebrospinal Fluid.

Examination of the cerebrospinal fluid has great diagnostic value. It tells much about the condition of the tissues of the brain and spinal cord in a very similar manner to that of the examination of the urine which reveals much of the condition of the tissues of the kidneys.

Many elaborate laboratory tests may be made on the cerebrospinal fluid but clinically the chief practical points to note are: 1. its pressure, 2. its color, 3. the number and character of cells per cubic centimeter, 4. its globulin content, 5. its sugar content, 6. its Wassermann reaction. 7, its colloidal gold curve, 8. a bacterial examination. Thus space restricting lesions, hemorrhage, acute infections and other conditions may be suspected.

Withdrawal of cerebrospinal fluid has definite therapeutic value under certain circumstances—pressure may be relieved in states of increased intracranial pressure such as acute hydrocephalus, encephalitis and meningitis or the fluid may be partially drained in some of the so-called metasyphilitic conditions, especially after the intravenous administration of salvarsan. Again, therapeutically, salvarsan, urotropin and other drugs and various sera and antitoxins may be injected intraspinously into the cerebrospinal fluid.

The cerebrospinal fluid flow from the puncture point may be increased by such voluntary effort as straining or coughing, or this increase may be blocked by tumor or obstructive lesion of the cord or by pressure on the carotids—Queckenstaedt sign. This fluid is secreted by the choroid plexus and absorbed by the cranial and spinal veins. General changes in the fluid pressure may be obtained by the administration of sodium chloride solution by mouth or in the veins to decrease, or pituitrin administered subcutaneously to cause an increase in the cerebrospinal fluid. Thyroid extract is thought to inhibit the amount of fluid to a certain extent, but this is questionable.

The contraindications to lumbar puncture are the presence, to any considerable degree, of choked disc, the presence of tumor of the cerebellum, pons or medulla, too sudden relief of pressure after brain or spinal cord hemorrhage and early stages of apparently localized meningitis where relief of pressure may spread the infection. One should be careful not to relieve too much fluid at one time, especially in cases of low pressure and the fluid should not be too completely drained.

Lumbar puncture headache is a complication in about one of thirty lumbar punctures. Its cause is much disputed. It is best treated by keeping the patient in bed, lowering the head, the administration of pituitrin and, if necessary, codeine. It is best prevented by putting the patient in a semi knee-chest position, with pillows under the abdomen for comfort, for an hour; elevation of the foot of the bed; prohibition of the use of pillows under the head for twenty-four hours; requiring the patient to stay strictly in bed for twenty-four hours.

Lumbar puncture is a safe procedure in careful hands, its performance is easily acquired by instruction and practice and it may be done on patients of any age, but it is not in general enough use and it is too frequently carelessly performed.

B. R. T.

Crime and Medicine.

That crime is frequently a symptom of a medical or surgical condition or disease is a very modern conclusion which is not widely accepted. Unless criminality hits home to the individual, the idea of crime being largely a medical problem is frowned down upon or entirely ruled out of court. But when criminality injects itself into a family it is remarkable how quickly they see the light.

Without going into the statistics, which are becoming available from various sources, let us state here that a large percentage of crimes as they are called, are committed by children mentally from five to ten years of age, but who have the statures and actual ages of adults.

Many are criminals because they are insane and the jails and penitentiaries contain numbers of irresponsible cases of dementia praecox, paranoia and manic depressive psychosis, to say nothing of the paretics. Many are potentially or actually epileptic. Many are constitutionally psychopathic. Some have head injuries with definite pathology; a few have pituitary disturbance; thyroid upset; gonad dyscrasia; or tuberculosis rendering them susceptible to criminal impulses. The damage done the brain by bad or diseased heredity or by birth hemorrhage, forceps pressure, meningitis or encephalitis may account for both slight and gross conduct disorders. A nymphomaniac may have an adherent hood of the clitoris causing retention of the smegma and irritation, a male aggressor may have an inflamed verumontanum and a homosexual offender may have been born with or have acquired a reversal of many sex characteristics.

Every daily newspaper carries descriptions of crimes which, to the initiated, are as much symptoms of diseased condition as cough is of whooping cough. These irresponsible children and ill people form a considerable percentage of the population of every reform school, every jail, and every penitentiary. Staggering sums of money are spent yearly by the National and State governments in trying their cases and doling out "justice" to them. In truth, the method of handling the situation is reminiscent of the period of the inquisition, of the time of the dungeon and the mad house, of the days of the persecution of witch craft. It puts the emphasis of the middle ages on punishment. There is the suggestion of the hydrocephalic monster idol from whose emerald cyclopic eye some seem still to think they get gleams of justice—the eye for an eye, tooth for a tooth idea of justice!

Admitting, if you please, that something is wrong, when little children, brain injured and diseased people are treated by periods of penal servitude or capital punishment, what is to be done about it?

We should not approach the subject in a niggardly fashion, nor can it be solved by sporadic effort, no matter how well intentioned or enthusiastic. The first step should be to throw more light upon the general situation. This may be accomplished by individuals, newspapers, and periodicals informing the public of the vast amount of work that has been done and is being done in studying and classifying these unfortunates. When the public sees, then the politicians will begin to open their eyes. The next step would be to do away entirely with expert testimony employed by either the prosecution or defense in criminal cases, and have all cases adjudged by a non-partisan expert commission financed by the State or Federal government. The third step would be to have every arrested criminal physically and mentally examined by a competent and properly financed board who would report to the authorities the prisoner's condition and mental responsibility. A fourth step would be to have adequate especial conduct disorder institutes for the observation, care and treatment of these cases. And last, though probably it should be first, every school child should not only have its mental age taken and its tonsils and teeth looked after, but it should have a complete and intelligent physical and psychiatric examination combined with a social and medical follow-up system. These examinations should be universal, thorough, and, although we dislike the word, compulsory.

B. R. T.

News Notes

Place and Date for Annual Meeting of Medical Society of Virginia.

The Executive Council of the Medical Society of Virginia held a meeting on January 30, and decided to accept the invitation of the Richmond Academy of Medicine, to hold its next annual meeting in Richmond. Dates selected for this meeting are October 13, 14, 15 and 16, with headquarters at Jefferson Hotel. On account of housing accommodations, it was deemed inadvisable to meet during the State Fair week, but it was thought that many coming for the Fair would be able to stay over for this meeting.

Let's make this the biggest and best meeting in our history!

Harmonizing Workmen's Compensation Laws.

Workmen's compensation laws, even those of some adjoining states, differ either medically or legally in important details, says the National Industrial Conference Board, 247 Park Avenue, New York City, in presenting seventeen suggestions offered by its medical adviser, the Conference Board of Physicians in Industry, for harmonizing the medical differences

and thereby doing away with much confusion and many difficulties in the administration of the laws.

While there is a general similarity in all of the laws important differences are found in them which make for misunderstandings and discontent on the part of workmen having claims under them. This is particularly true in adjoining states, in one of which benefits for certain injuries may be much higher than for similar conditions in a neighboring commonwealth. The situation has been further complicated by decisions of industrial commissions and courts which often make opposite interpretations of identical phraseology in different laws.

The Board of Physicians suggests, in effect, that—

At least one member of each state compensation board should be a physician, who should also be the medical director of the board;

Each board should have a consulting staff of specialists to advise it on medical problems;

Examining physicians should be appointed by the state board on recommendation of the consulting staff on the basis of their professional qualifications;

Only licensed graduates of recognized medical schools should be permitted to treat compensation cases;

Medical fees should conform to the average charges for like work in the community;

"Medical treatment" should include all necessary medical, surgical and hospital care and attendance and also such supplies and appliances as may be necessary;

Examination of an injured worker should be made immediately following the injury and later examinations should be at the expense of the party requesting the same.

The choice of physician should be made by the employer or be made by the employee from a list of local physicians compiled by the employer;

Copies of the findings of examining physicians should be furnished to all interested parties, and reports and testimony of other physicians should not be allowed before the board till medical representatives of the other party have knowledge of the information to be given;

The refusal of medical treatment by the injured worker should release the employer from further responsibility in the matter;

Amputations should be made with regard to the function of the part remaining and not alone with regard to the amount of tissue removed, which latter proceeding might leave a tender appendage, useless for applying an artificial member and would, at the same time, in some states reduce the compensation of the injured employee.

Autopsies should be made at the request of the employer, the beneficiaries, or the state board, and should be paid for by the party requesting them;

Compensation for disease alleged to be due to accident should be granted only on proof of direct causal connection between the accident and the onset of the disease;

Compensation for the aggravation of latent or pre-existing disease should be limited to the degree of disability caused by the aggravation;

The per cent of reduction of vision and its economic valuation should be based on the age and occupation of the employee, and each case should be judged on its merits and not by a predetermined schedule;

Claims that hernia has been caused by employment must be made within twenty-four hours of its alleged occurrence and must be supported by proof of certain specified conditions;

Compensation should be granted for occupational diseases that are peculiar to the employment or are due to some unexpected result thereof. The term "and sequelae" frequently used in connection with occupational disease schedules, should be eliminated.

These provisions are not new departures, since everyone of them may be found in the compensation laws of one or more of the states; but, the Conference Board points out, their substantial inclusion in all the state laws would obviate much of the confusion and difficulty now experienced in the administration of these laws.

New Home of Norfolk County Medical Society.

For some years past the Norfolk County Medical Society, which has a membership of some 180 physicians of Norfolk, Portsmouth and Norfolk County, has been very inadequately housed in a small hall in a down town building where light and air were markedly absent. The windows of the hall opened on a five foot passage between two tall buildings, and even with the brightest sunlight outside artificial light had to be used, and adequate ventilation was impossible. For a long time the members have annually debated the question of more satisfactory quarters; but, for outstanding reasons, until very recently no suitable place could be found.

With the erection and equipment of the new Medical Arts Building, an opportunity came for the long sought improvement. An arrangement was made with the owners of the building, which was planned as an eight story office building, to add a half story and make this ninth floor the home of the Medical Society. This plan was carried out and, on the 1st of January, possession was taken of the new quarters. According to the plan, this part of the building is set back some distance from the edge of the roof of the main building, so that in summer time a very attractive roof garden may be arranged, which will command a view of surpassing beauty of the splendid harbor of Norfolk and surrounding territory. A division into two rooms has been made, the larger providing a commodious assembly room of approximately double the size of the old

one, and the smaller is a cozy reading room giving space for a portion of the Society's valuable library, the rest of which occupies space in the assembly room. Both rooms have ample provision for light and ventilation and have been fitted with many conveniences for the comfort and utility of the membership.

For three years past the Society has employed a full time Librarian and the library is accessible daily for the use of its excellent stores of information, and its use by the members is steadily on the increase. The unflagging zeal of Dr. Frank Hancock as Chairman of the Library Committee, supported by active associates, is fast building up a library of real value, helping to make the activities of the Society a large factor in the professional lives of its membership. In no small degree has this feature of the work made possible the presentation by the Society of helpful, progressive enthusiasm that has characterized the programs of the past few years. Meetings are held each Monday of the year except during the heat of summer, and the numbers in attendance and interested discussions attest the high character of the papers presented and the degree to which the Society has succeeded in impressing its intrinsic value upon the minds of its members. That it has fostered a fraternal spirit among the physicians who frequent its meetings is one of its greatest achievements. Seldom is so great a degree of harmony exhibited as among the members of the profession in Norfolk. That a yet wider field of usefulness is opening before the Society, and that its progress will greatly outstrip that of the past go without debate.

The Tri-State Association of the Carolinas and Virginia.

Is to hold its annual meeting in Richmond, Va., February 18, 19 and 20. The first session will convene at the Jefferson Hotel, at 10 A. M., on the 18th, Dr. F. H. McLeod, of Florence, S. C., presiding. The meeting is to be purely scientific. On Wednesday, the 18th, at 6:30, the alumni of the Medical College of Virginia will have a banquet at Commonwealth Club and, at the same time, all ex-presidents attending will have the usual presidential dinner. Dr. James K. Hall, Westbrook Sanatorium, Richmond, is secretary-treasurer, and will gladly give any further information about this meeting.

The Virginia-West Virginia Section, Clinical Congress of American College of Surgeons

Will hold its next meeting in Charleston, W. Va., March 20 and 21. Dr. Clarence Porter Jones, Newport News, is chairman, Dr. J. E. Rawls, Suffolk, secretary, and Dr. Hugh H. Trout, Roanoke, counselor, of the Virginia section. Dr. G. G. Schoolfield, Charleston, is chairman, Dr. J. E. Cannaday, Charleston, secretary, and Dr. Hugh G. Nicholson, Charleston, counselor, of the West Virginia section.

Married.

Dr. O. C Page and Miss Nettie Clements, both of Brodnax, Va., January 18.

Lemuel Redmond Broome, Kinston, N. C., a member of the graduating class of the Medical Department of the University of Virginia, and Miss Dorthy Dawson Houchens, of Charlottesville, Va., January 20. Mrs. Broome recently graduated from the training school of the University Hospital.

Dr. John M. G. Ryland and Miss Virginia Randolph Davis, both of Richmond, January 27.

Dr. Charles E. Dyer,

Jewell Ridge, Va., recently spent several days visiting his family in Pulaski, Va.

To Make Serums the Same the World Over.

The Health Committee of the League of Nations, in a report to be filed with the Council of the League, a copy of which has just reached this country, announces the plans of the Committee for the standardization of antitoxins and serums. Last year agreement was reached on the question of the standardization of antitoxin for diphtheria and it is expected that during the present year the tetanus serum will be standarized. Similar attempts for the standardization of serums are being carried on in other branches of practical medicine, notably with regard to the use of insulin.

The value of the standardization of serums and antitoxin to physicians lies in the fact that in the future the medical authorities of different nations will have at their disposal the medical knowledge, practice, and literature of all countries. In the past the hospital statistics of London, Berlin and Paris have been of little use to the American practitioner as every country has a different kind of serum.

Dr. O. S. Burns,

Lebanon, Va., had the misfortune to have his car damaged recently by a speed demon, while en route to Bristol, Va. The doctor and his wife fortunately escaped without injury.

Dr. and Mrs. R. T. McNair

Have returned to their home at Emporia, Va., after a visit to Philadelphia and other northern cities.

Dr. Lewis M. Allen,

Winchester, Va., has been named a member of the executive commitee of the Clarke County Horse and Colt Show Association.

Dr. Dean B. Cole,

Richmond, has been appointed head of the Tuberculosis Division of the Bureau of Health of this city. He formerly held this position but resigned on account of his health. The place has been vacant since the resignation of Dr. W. Nelson Mercer, last summer.

Dr. Cole will be a part time officer but he will have general supervision of tuberculosis work in this city and be chief medical officer of Pine Camp hospital.

This will in no way interfere with Dr. Cole's private work.

Education Pays.

$33,000 is the cash value of a four-year high school course, and $72,000 the cash value of college or technical training, according to a recent study by Dean Everett W. Lord, of the College of Business Administration of Boston University. Dean Lord has issued charts showing the maximum earnings of the average untrained man, as compared with those of the high school graduate and of the college or technical school graduate. The untrained man, he finds, begins work at fourteen, reaches his maximum income at thirty, receiving on the average less than $1,200 a year, and has earned by the time he is sixty, about $45,000. During the four years that would have given him a high school education, he earns not more than $2,000.

The high school graduate goes to work at eighteen, rises to a maximum income of $2,200 a year at forty, and has earned by the time he is sixty, about $78,000. By remaining four years in high school, at an immediate loss of $2,000 in earnings, he has increased his total earnings by $33,000.

The college or technical school graduate begins work at twenty-two, rises to a maximum of $6,000 at sixty, and earns in all about $150,000.

Gift Made Indiana University for Women's Hospital.

A gift of $250,000 has been made to the Indiana University by Mr. and Mrs. William H. Coleman, of Indianapolis, for a woman's hospital, to be used principally for lying-in patients. The new hospital will be located on the medical school campus, at Indianapolis, and will become a training unit of the school of medicine. It will have a capacity of about 100 beds, chiefly for lying-in cases and a smaller number of gynecological patients, and will include the very latest special equipment. It will be maintained by the state and will receive patients from every county in the state.

This gift from Mr. and Mrs. Coleman is in addition to one of $75,000 contributed by them last June to the school of medicine of the state university, for the endowment of three chairs—ophthalmology under the direction of Dr. F. A. Morrison, surgery directed by Dr. John H. Oliver, and gynecology under Dr. O. G. Pfaff. Both gifts are in the form of a memorial to their daughter.

Hanover County Board of Health.

Dr. J. A. Wright, of Doswell, Va., has been named secretary of the Hanover County Board of Health, succeeding the late Dr. H. B. Anderson, of Noel. Dr. A. Chambers Ray, of Ashland, is chairman of the board, and Dr. Wright and Dr. A. B. Gravatt, of Ellerson, represent two districts.

Dr. R. C. Fravel,

Richmond, recently visited his mother and brother at Woodstock, Va.

Dr. W. C. Webb,

Disputanta, Va., was elected president of the County Council of Prince George, at the organization held at Prince George Courthouse, January 21.

Dr. Thurston Turner,

A recent graduate in medicine from a Louisville, Ky., school, has located at Swords Creek, Va., for the practice of his profession.

Winners of Modern Hospital's Essay Contest Announced.

Mr. Edward A. Fitzpatrick, dean of the graduate college and educational director of the hospital college of Marquette University, Milwaukee, Wis., received first prize in *The Modern Hospital* Publishing Company's essay contest on "The Interrelationships of Hospital and Community," which closed November 1. Three awards of $350, $150, and $100, and three honorable mentions were made.

Second and third prizes went to Dr. Lucius R. Wilson, assistant superintendent, Barnes Hospital, St. Louis, Mo., and to Dr. D. L.

Richardson, superintendent, Providence City Hospital, Providence, R. I., respectively.

Honorable mention was given to Mr. John R. Howard, Jr., superintendent, New York Nursery and Child's Hospital, New York; Mr. H. J. Southmayd, assistant superintendent, Mount Sinai Hospital, Cleveland, Ohio; and Miss Zella Nicolas, R. N., a graduate of the nursing school, Mount Sinai Hospital, New York, N. Y., now a student at Teacher's College, Columbia University, N. Y.

Dr. G. G. Painter,

Of Pulaski, Va., has been critically ill with pneumonia.

Dr. Charles M. Caravati,

Richmond, gave a talk on "Recent Advancements in Medicine" before the Catholic Business and Professional Women's class in current events, January 29.

Dr. E. L. Grubbs,

Front Royal, Va., was a recent visitor in Washington, D. C.

Dr. R. L. Mason,

Of Roanoke, Va., was called to Bridgewater, Va., on account of the death of his mother, which occurred at that place, January 18, 1925.

Dr. Frank Hopkins,

Of Hot Springs, Va., left the first part of January for a sea trip to Los Angeles, California, via Panama Canal, and expected to be away about six weeks.

Dr. Charles A. Easley,

After many years of practice at Bluefield, W. Va., because of illness of several years' duration in the mountains, moved to Chatham, Va. He states that the climate there has restored his health and he is actively engaged in practice.

Dr. Lanier D. Pole,

Of Hot Springs, Va., visited the Mayo Clinic, Rochester, Minn., in December.

Dr. J. Minor Holloway,

Of the Graduate School of Medicine, University of Pennsylvania, Philadelphia, spent the Christmas holidays with his family in Port Royal, Va.

The Virginia Tuberculosis Association,

At its meeting in Richmond, in January, re-elected Dr. Charles R. Grandy, Norfolk, president for the following year. Dr. E. C. Levy, Richmond, was elected first vice-president, and Dr. Roy K. Flannagan, Richmond, secretary. Drs. Grandy, E. C. Levy, William F. Drewry, and B. B. Bagby are among the members of the executive committee.

Dr. and Mrs. George C. Hall,

Richmond, left the latter part of January for Florida, where they will spend several weeks while Dr. Hall is recuperating from a recent illness.

Dr. Julian M. Robinson,

Danville, Va., is at work again, after undergoing an operation in January, for the removal of his tonsils.

Dr. and Mrs. Charles C. Tennant,

Charlottesville, Va., after a short visit to Richmond, have sailed for a tour of European countries, including France, Italy, Germany, Scotland, and Ireland.

Radio Service Far Reaching in Health Work.

For three years, the U. S. Public Health has operated a Health Information by radio service consisting of weekly health lectures on timely health topics. A total of forty-seven stations are now co-operating in this work. Surgeon-General Cumming was agreeably surprised, recently, to receive a letter from the chairman of the Health Week Committee of Jerusalem, Palestine, which stated that during their health campaign, several of our health talks prepared for broadcasting were used.

Dr. Bertha D. Berger,

Who was for sixteen years assistant physician at the Western State Hospital, Staunton, Va., is now resident physician at the Grundy Sanitarium, Catonsville, Md.

Dr. William H. Higgins,

Richmond, was elected secretary-treasurer of the local chapter of the Kappa Alpha fraternity, at its annual meeting in January.

Professor of Preventive Medicine at Medical College of Virginia.

Dr. E. C. Levy, former director of the Richmond Department of Public Welfare, has accepted the professorship of preventive medicine at the Medical College of Virginia, and entered upon his duties at the beginning of the second semester on January 27.

Dr. W. G. Trow,

Warrenton, Va., has been under treatment at Walter Reed General Hospital, Washington, D. C., for several weeks.

Birth Registration in North Dakota.

North Dakota, having improved its birth registration so that it is now ninety per cent complete, has been admitted to the birth-regis-

tration area of the United States. This area now includes thirty-two states and the District of Columbia.

Infant Mortality Decreases in Germany.

A decrease in infant mortality in Germany during the past five years, as compared with the pre-war period, is reported by the *Soziale Praxis*, Berlin. The rate has dropped from 150 per 1,000 live birth in 1913 to 132 in 1923. As compared with the United States rate for 1923, which was seventy-seven, Germany's rate is still very high.

Specialists of all Nations Will Continue to Fight Cancer.

A Commission to study Cancer to consist of international medical authorities has been appointed by the Health Committee of the League of Nations. The first work of the Commission will be a comparison of the statistics of Great Britain, Italy and the Netherlands relating to the cause of the difference shown to exist between the cancer mortality of these countries. The Cancer Commission was further empowered to extend its investigations into the epidemiology of cancer in general as far as circumstances will permit.

So far European medical authorities have discovered that there is more cancer in England than in Italy and that there seems to be an inverse relation between cancer and birth rate. This hypothesis seems to be borne out by the fact that in the United States women of Italian birth, according to Dr. Eichel, have more children and less cancer than women from the British Isles.

The services of Dr. Eichel, of New York, were loaned to the Health Committee of the League by the State of New York. He died from double pneumonia in Geneva on December 23, 1924.

Vice-President Weicker, of E. R. Squibb and Sons, Honored.

Fellow executives, department heads and representatives of the sales staff of E. R. Squibb & Sons, on January 3rd, at the Hotel Commodore, New York, participated in the celebration of the twentieth anniversary of the association of Vice-President Theodore Weicker with the House of Squibb. The feature of the happy event was the presentation to Mr. Weicker by President Carleton H. Palmer, on behalf of those present, of a rock-crystal service set with a center piece of old English spode ware. Although taken by surprise, Mr. Weicker, who had already addressed the members of the Squibb Go-Getter Club, who had contributed the most consistent and constructive service during the year past, was quite equal to the new demand. His graceful response was another convincing demonstration of the genuine inspiration and kindly consideration he has extended to his co-workers throughout the years that he has sturdily maintained the sterling principles of the House of Squibb as established by its illustrious founder, Dr. Edward R. Squibb.

The presentation of rewards to the fifteen representatives of the sales staff who had qualified as the key Squibb Go-Getters during 1924 was another interesting feature of the program. R. D. Keim, director and general sales manager, acted as toastmaster at the banquet and presided at the reception which followed.

Dr. P. D. Lipscomb,

Richmond, has again been elected surgeon of the Stonewall Jackson Camp, Sons of Confederate Veterans.

Germ Killing Effect of Ultra-Violet Measured.

A study of the germ killing action of the ultra-violet rays has been made by the Bureau of Standards, Department of Commerce, covering the range of wave length from just beyond the range of the visible spectrum down to the shortest wave lengths emitted by a mercury vapor arc in a quartz lamp. These tests are reported in scientific paper No. 495 of the Bureau entitled "A Radiometric Investigation of the Germicidal Action of Ultra-Violet Radiation" by W. W. Coblentz and H. R. Fulton. Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the price of 20 cents each.

Dr. Henry J. Langston,

Danville, Va., announces removal of his office to suite 509-11 Masonic Temple, that city, where he will continue his work in general practice.

Dr. and Mrs. Powhatan Moncure,

Bealeton, Va., are spending the winter months with their son in Washington, D. C.

U. S. Civil Service Examinations.

The U. S. Civil Service Commission, Washington, D. C., announces the following open competitive examinations, information in regard to which may be obtained from the above named Service, or the secretary of the U. S.

civil-service examiners at the post-office or customhouse in any city.

Junior medical officer, assistant medical officer, associate medical officer, medical officer, and senior medical officer, for various branches of the Government service, receipt of applications for these positions to close June 30.

Physiotherapy aide, physiotherapy pupil aide, and physiotherapy assistant, examinations to be held throughout the country on February 18, March 25, April 22, May 20, and June 24, 1925.

Occupational therapy aide, and occupational therapy pupil aide, applications for these positions to be rated as received until April 30.

Associate social economist, and assistant social economist, receipt of applications to close March 10.

Graduate nurse, graduate nurse (visiting duty), and dietitian, applications to be rated as received until June 30, 1925.

Dr. Chester E. Haberlin,

Of the '24 class, Medical College of Virginia, after a service of several months at Grace Hospital, New Haven, Conn., has located at 324 Carroll Avenue, Bridgeport, Conn.

Dr. and Mrs. William Patterson,

Richmond, Va., have just returned home after a vacation of several weeks in Miami, Fla.

Dr. A. I. Dodson,

Richmond, a former lieutenant in the navy, has been appointed a captain in the medical corps of the Virginia national guard and will be attached to the 246th coast artillery. He succeeds Dr. E. T. Trice, Richmond, recently promoted.

Dr. Eugene Rogers

Returned to his home in Covington, Va., the middle of January, after an extended visit to Chicago.

The Annual Congress on Medical Education, Medical Licensure, Public Health and Hospitals

Will be held in Congress Hotel, Chicago, March 9-12, inclusive. An interesting program includes many speakers of national prominence.

Dr. A. L. Jones,

Recently of Chilhowie, Va., announces his removal to Galax, Va.

Dr. T. W. Edmunds,

Danville, Va., as left for Vienna, Austria, where he will take six months' post-graduate work in diseases of the eye, ear, nose and throat. Dr. Edmunds, during his seventeen years in Danville, has limited his work to these specialties.

The Southern Section of the American Laryngological, Rhinological and Otological Society

Held its meeting in Jacksonville, Fla., January 19, under the presidency of Dr. H. M. Taylor of that city. Drs. E. G. Gill, Roanoke, Va., and H. S. Hedges, Charlottesville, Va., were among those present.

Dr. Thomas J. Tudor

Has moved from Exeter, Va., to Norton, Va., where he will continue the practice of his profession.

Dr. H. O. Bell,

Richmond, who has been medical inspector of the City Bureau of Health since December, 1923, will leave March 1st for New York City, where he will take post-graduate work in obstetrics at the New York Nursery and Child's Hospital. He will return to Virginia about September 1st.

Dr. J. S. Horsley, Jr.,

Has returned to his home at Westmoreland Place, Richmond, Va., after undergoing an operation for an ossified subperiosteal hematoma of the right femur, at Johns Hopkins Hospital, Baltimore, Md. This condition was the result of a foot ball injury received some years ago.

Dr. Alexander G. Brown, Jr.,

Richmond, after several weeks spent in pleasure and attending clinics in European countries, landed in New York on the 10th of February, and expected to be home by the middle of the month.

The American Congress on Internal Medicine

Will hold its ninth annual clinical session in Washington, D. C., March 9-14, 1925.

Washington clinicians and investigators of attainment will devote the entire session to amphitheatre and group clinics, ward "rounds," laboratory conferences, lectures, demonstrations of special apparatus and methods, and the exhibition of unusual scientific collections. Civilian and governmental services are united in the aim to make the week useful and memorable.

Practitioners and laboratory workers interested in the progress of scientific, clinical and research medicine are invited to take advantage of the opportunities afforded by this session.

Dr. Wm. Gerry Morgan, Washington, D. C., is president. Address inquiries to the Secretary-General, Dr. Frank Smithies, 1002 North Dearborn Street, Chicago, Ill.

Bed Endowed at Winchester Hospital.

Memorial Hospital, Winchester, Va., has received a check for $5,000 from Graham F. Blandy, of New York and Clarke County, Va., to endow a bed in the hospital as a memorial to his mother. The interest will be used for the up-keep of the bed which is to be for the free use of any resident of Clarke County who may not be able financially to pay needed hospital charges.

New Building for Doctors in Washington.

A corporation, composed of Washington, D. C., physicians, with Dr. Charles S. White as president, and Dr. O. B. Hunter secretary, has let plans for the erection of a large office building in that city, which will be especially designed for offices of physicians and surgeons. It is to be located at 18th and I Streets, Northwest.

Eugenics in Relation to the New Family

Is the fourth of the "New Family" series of booklets issued by the Virginia Bureau of Vital Statistics. It is for popular circulation and may be had free upon request to the State Bureau of Vital Statistics, Richmond, Va. It refers briefly and in an elementary manner to the principles of eugenics, particularly with reference to the preservation of racial purity. It may well be placed in the hands of all young and marriageable persons in the State.

The Inter-State Post Graduate Clinic Tour of American Physicians,

To Canada, the British Isles and France, will start from Chicago, May 17, or from cities in the east in time to reach Toronto on May 18. Arrangements have been made for physicians to visit clinics in Toronto, Montreal, London, Liverpool, Manchester, Leeds, Dublin, Belfast, Glasgow, Edinburgh, Newcastle, and Paris, and Lyon and Strasbourg, if desired. During the stay in these various cities, time will be allowed for sight-seeing and some social functions. The clinics and demonstrations will include all the different branches and specialties of medical science. Dr. Charles H. Mayo, Rochester, Minn., is president, and Dr. William B. Peck, Freeport, Ill., director of the tour. The trip will last about six weeks. Price of the trip from Chicago, Ill., and return to Chicago, is from $750 to $990; from Montreal to Montreal or New York, on return, $640 to $880.

The tour is open to members of the profession who are in good standing in their state or provincial societies and to their families. A limited number of lay friends of physicians can be cared for. In order to reserve space for the tour, send $65 per person to the managing director, as reservations will be assigned and preference given for accommodations in the order received. This amount will be applied on the price of the tour, or, should the applicant be unable to go, the $65 will be refunded immediately, if request for same is made within six weeks of sailing time.

For further information, write Dr. William B. Peck, Freeport, Ill.

Dr. R. W. Stoneburner,

Montgomery, W. Va., recently spent sometime visiting friends in the neighborhood of his former home in Shenandoah County, Virginia.

Another Full-Time Secretary.

The West Virginia State Medical Association has appointed Mr. Sterrett Neale, of Huntington, W. Va., as executive secretary, and will have offices in Smallridge Building in Charleston. Mr. Neale has been engaged in newspaper work in Huntington and Charleston.

Dr. and Mrs. E. P. Tompkins,

Of Roanoke, Va., with their little sone, are spending the winter at Pass-a-Grille, an island in the Gulf of Mexico, near St. Petersburg, Fla.

Have You Seen a Copy of Hygeia?

If not, secure a copy from the American Medical Association, Chicago, Ill. It is the best journal pertaining to health matters which can be placed in the hands of your patients. One of our members is showing his appreciation of this magazine, devoted to "individual and community health," by trying to get it introduced into all the public schools in his community. Endorsement of this kind speaks for its value.

Dr. William T. Graham,

Richmond, was elected president of the Harvard Club of Virginia, at its annual meeting held in Richmond, the latter part of January.

Members of Committees, Richmond Chamber of Commerce.

The following doctors are among those named as members of various committees of the Richmond Chamber of Commerce for 1925:

Drs. Paul V. Anderson, Charles A. Blanton, J. Shelton Horsley, J. Morrison Hutcheson, Clifton M. Miller, William H. Parker, Robert S. Preston, Charles R. Robins, and Carrington Williams.

American Association for Medical Progress.

The Friends of Medical Progress, a National Lay Organization incorporated in Boston, Massachusetts, in 1923, for the purpose of disseminating medical knowledge among the general public, is contemplating for the year 1925 a greatly extended program of service.

Office headquarters, formerly located in Boston, have moved to New York City, 370 Seventh Avenue, where co-operation with the more important educational and health organizations will be facilitated. With the change in location also comes a change in name. The society will hereafter be called the American Association for Medical Progress.

Mr. Benjamin C. Gruenberg, well known to workers in the fields of education and public health, will take over the active management of the organization.

In the past year approximately 72,000 publications dealing with various phases of animal experimentation, vaccination, etc., have been distributed. An increasing number of similar publications is planned for the current year. A lecture program will be developed and attention will be focused on the formation of branch organizations throughout the country.

Income Tax Time Here Again!

We publish this as a reminder to file your 1924 income tax returns with the collector of internal revenue for the district in which you live or have your principal place of business, on or before March 15, 1925. Failure to receive a form does not relieve the taxpayer from his obligation to file a return and pay the tax within the prescribed time. Forms may be obtained from offices of collectors of internal revenue and branch offices.

All single people who had a net income of $1,000 or more, or gross income of $5,000 or more, and married couples who had a net income of $2,500 or more, or gross income of $5,000 or more, must file returns.

Dr. William deB. MacNider,

Of Chapel Hill, N. C., delivered an address before the Richmond Academy of Medicine at its regular meeting in this city, January 27.

Dr. E. W. Young,

Petersburg, Va., was elected senior commander of the Old Dominion Post, No. 622, Veterans of Foreign Wars, at its regular meeting in Petersburg in January.

Gift to Crippled Children's Convalescent Hospital.

The Crippled Children's Convalescent Hospital, Richmond, has been the recipient of a gift of $10,000 from Mrs. Alfred I. Dupont, as a memorial to her mother. This will be used to build a heliotherapy room and a part will be put out at interest to furnish a perpetual endowment for the hospital.

Dr. Mosby G. Perrow,

Lynchburg, Va., has been elected one of the directors of the Lynchburg Inter-State Fair Association.

Addition to Elizabeth Buxton Hospital.

An addition has been started to Elizabeth Buxton Hospital, Newport News, Va., which will have three stories and a basement. The latest modern equipment will be installed in the several laboratories to be included in the extension, the entire cost of which will be about $110,000. It is thought the new wing will be completed about the end of the summer.

Doctors Among Bank Directors.

The following doctors are noted as directors in some of the Virginia banks: Dr. Wm. J. Crittenden, Orange; J. P. Hankins, Unionville; E. W. Twyman, Twymans Mill; Drs. J. M. Williams, Fletcher J. Wright, W. P. Hoy, and J. Bolling Jones, Petersburg; Dr. William D. Prince, Stony Creek; and Dr. J. F. Slade, Sussex.

New Dean at Northwestern University.

Dr. Irving S. Cutter, Omaha, Nebr., formerly editor of the *Nebraska State Medical Journal*, has been appointed dean of the medical school of Northwestern University, Chicago, and will enter upon his duties in the early summer.

Dr. S. A. Conduff,

Formerly of Laurel Fork, Va., has located at Mount Airy, N. C.

New York's New Medical Center.

Construction has been begun on the first and largest unit of New York's new Medical Center. Ground was officially broken on January 31st, on the twenty-two acre plot at 168th Street and Broadway. This center is to be composed of the new Columbia University School of Medicine and Presbyterian Hospital —a ten million dollar structure. One million dollars each has been contributed by the

Carnegie Foundation, the Rockefeller Foundation, and the General Education Board.

Appointments by President of Medical Society of Virginia.

Dr. Hunter McGuire, Winchester, president of the Medical Society of Virginia, has made the following appointments:

Military Committee of the Medical Society of Virginia: Dr. Garnett Nelson, Richmond, chairman, and Drs. B. B. Dutton, Winchester, B. R. Kennon, Norfolk, and J. T. McKinney, Roanoke.

Committee to make study of Industrial Insurance and make report at next annual meeting of the State Society: Dr. Israel Brown, Norfolk, Dr. James K. Hall and Dr. W. Lowndes Peple, Richmond; and

Dr. E. C. S. Taliaferro, Norfolk, chairman of the Walter Reed Memorial Association, succeeding Dr. Garnett Nelson, resigned.

Fire at University of Pennsylvania.

A loss estimated at $25,000 was caused by a fire which occurred in the Medical School of the University of Pennsylvania, the latter part of January. Six laboratories and a research room were badly wrecked by the fire.

Why Are Children Bad?

Delinquent children are usually under par physically. This is shown by a study made in New York of 743 children brought before the children's court. Examination of these children indicated that the physical condition of delinquent children in general is much inferior to that of ordinary school children. Seventy-nine per cent of the children before the court had physical defects, while only thirty-five per cent of public school children living in the same districts and of the same ages and nationalities, had defects. The chief difference between the two groups so far as physical conditions were concerned, seemed to be in nutritional and glandular disturbances.

Cleveland's Anti-Diphtheria Campaign.

An anti-diphtheria campaign among kindergarten and first-grade children in the Cleveland schools is described in the *Ohio State Medical Journal.* Only children who bring signed permits are given the treatment, which consists of the Schick test to discover whether susceptibility to diphtheria exists, and then, in cases showing positive reactions, injection of three doses of toxin-antitoxin. Two-thirds of the 12,000 children tested during the present year were found to give positive reactions. No untoward results and very few local reactions followed treatment.

A Child-Welfare Professorship.

Child welfare is now recognized as a subject worth the attention of colleges and universities. Evidence of this is seen in the fact that a chair of instruction in the welfare of the child has been endowed at the University of Pennsylvania.

Correcting Physical Defects in School Children.

Over 163,000 defects are reported to have been corrected as a result of the physical examination of New York City school children. The weekly bulletin of the New York Department of Health gives these figures and also reports that examination of children applying for employment certificates showed a decrease in the percentage of defects discovered during 1923 as compared with previous years.

England's Low Infant Death Rate.

According to the report of the Registrar General for the third quarter of 1924, the infant mortality rate in England and Wales during that quarter was the lowest ever recorded in those countries—fifty-four per one thousand live births. The United States rate in 1922 for the birth-registration area was seventy-six.

Obituary

Dr. Edward May Magruder,

A prominent physician of Charlottesville, Va., died at his home in that city, January 10, at the age of sixty-six years. He was born in Charlottesville, Va., and, upon completion of his academic education, studied medicine at Bellevue Hospital Medical College of New York and at the University of Virginia, graduating from the last named school in 1884. Following this, he took post-graduate work at the New York Polyclinic. Dr. Magruder joined the Medical Society of Virginia in 1885 and the same year became connected with the department of medicine at the University of Virginia. He was instructor there in physical diagnosis for twenty-five years, until he was forced by his health to retire from teaching. He was actively interested in the medical affairs of the State and was connected with a number of medical organizations. He was for a number of years a local surgeon of the Chespeake and Ohio and Southern railways. Dr. Magruder

served as a member of the medical advisory board of the twenty-ninth Virginia district during the World War. He is survived by his wife, who was Miss Mary Cole Gregory, of King William County, Va., and by four children.

Dr. Albert Sidney Priddy,

Superintendent of the Virginia Colony for Epileptics and Feebleminded since its establishment in 1910, and formerly assistant superintendent at the Southwestern State Hospital at Marion, died January 13, at a Lynchburg, Va., hospital. His death resulted from Hodgkin's disease. Dr. Priddy was born in Lunenburg County, Va., fifty-nine years ago and graduated in medicine from the College of Physicians and Surgeons of Baltimore in 1886. After graduation, he engaged in private practice in Keysville, Va., for about fifteen years before taking up institutional work. He had been a member of the Medical Society of Virginia since 1886 and was a former vice-president; he was also an interested member of several other medical societies and was recognizd as a psychiatrist of note. He served two terms in the House of Representatives from Charlotte County. Dr. Priddy is survived by his wife (having been married little more than a year), and by several sisters. The burial was at his old home at Keysville, Va.

Dr. Charles Allen Saunders,

A prominent and beloved member of the Norfolk profession, died November 17, 1924, after having been in bad health for some time. He was born in Emporia, Va., in 1886, and studied medicine at the University College of Medicine, Richmond, from which he graduated in 1899. He was elected to membership in the State Society the same year. For more than twenty-five years, Dr. Saunders had been one of the most regular attendants of the Norfolk County Medical Society and took an active part in its deliberations and activities. He continued active in his professional work until shortly before his death in spite of the fact that he was a constant sufferer. He was held in high esteem by his professional associates.

Dr. Allen Granberry Thurman,

Of Appomattox, Va., died January 31st at Memorial Hospital, Lynchburg, Va., after a short illness. He was forty-nine years of age and studied medicine at the University College of Medicine, Richmond, from which he graduated in 1900. He had been a member of the Medical Society of Virginia since 1903 and was a Mason. Dr. Thurman for some time practiced at Goodview, Va., having moved to Appomattox only a few years ago. The body was taken to Bedford County for burial. He is survived by his wife, four sons, a daughter and a large family connection.

Dr. Nelson Winslow Francis,

A graduate of the University College of Medicine, in 1897, died at his home at Ormond, Fla., December 23, after a long illness. He was fifty-one years of age.

Dr. Lewis Beall Firey

Died at his home in Norfolk, Va., January 1st, of influenza. He was fifty-nine years of age and a graduate in medicine from the University of Maryland, Baltimore, in 1890.

Colonel William Otway Owen, U. S. A.

Formerly of Virginia and a graduate in medicine from the University of Virginia in 1878, died at his home in Washington, D. C., December 26th, at the age of seventy years. Death was due to heart disease.

Dr. John Hunter,

Of Sydney, Australia, who with Dr. N. D. Royle came to America at the invitation of Dr. William J. Mayo and Dr. Franklin H. Martin to deliver the John B. Murphy Oration in Surgery at the meeting of the Clinical Congress of Surgeons, in New York, last October, died in London, England, December 10th. The work of Drs. Hunter and Royle in connection with Spastic Paralysis created unusual interest among the surgeons, orthopedists and neurologists of the world. Dr. Hunter had stopped in England on his return trip from America, and was engaged in giving demonstrations and lectures in connection with his work. In his enthusiasm over his work, he did not realize that he was seriously ill until a few days before his death.

Sir James Mackenzie,

Widely known for his studies on diseases of the heart, died January 28th, at the age of seventy-one years. He was a recognized leader in medicine and will long be remembered for his valuable contributions to medical literature on diseases of the heart. He had been the recipient of many professional honors.

Trendelenburg Dead.

Professor Friedrich Trendelenburg, for many years director of the surgical university clinic in Leipsig, died in Berlin, December 16, at the age of eighty years.

ILETIN (INSULIN, LILLY)

Pure, Stable, Constant in Unitage

Iletin (Insulin, Lilly) is now supplied in containers of two sizes: 5 c.c. vials and 10 c.c. vials. Both the 5 c.c. and 10 c.c. vials bear the same designation: U-10, U-20 and U-40. To distinguish between the two sizes it will be necessary, for example, to order as U-10, 5 c.c. vials or U-10, 10 c.c. vials. In absence of specifications as to size wanted, the 5 c.c. vials will be supplied.

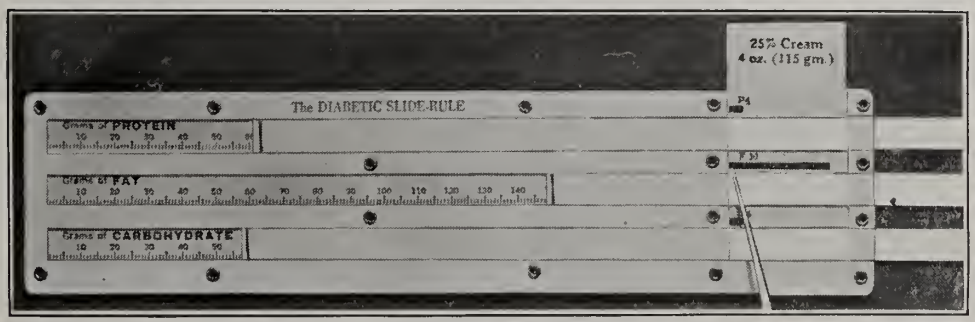
IMPORTANT ACCESSORIES

Iletin Syringes	Urine Sugar Testing Outfit	Saccharin Tablets
Ampoules Glucose	Benedict's Solution	Plain Agar, Granular

Physicians will be sent Additional Information on These Items on Request.
All Lilly Products are Supplied by the Drug Trade.

ELI LILLY AND COMPANY

INDIANAPOLIS, U. S. A.



THE DIABETIC SLIDE RULE

Enables the patient to calculate his diet in terms of protein, fat and carbohydrate accurately and quickly. For further information address The Diabetic Association, P. O. Box 114, Nashville, Tenn.

HUNDREDS OF PHYSICIANS

have their outfitting accounts with us. They are all good accounts. We want yours.

Hanan Shoes

O. N. Berry Co.
ESTABLISHED 1879
RICHMOND, VA.

Dunlap Hats

VIRGINIA TRUST COMPANY
RICHMOND, VA
THE SAFE EXECUTOR

Capital $1,000,000 Surplus Earned $1,000,000

ESTABLISHED 1892

To act as Executor, Guardian and Trustee
$25,000,000
of investments held in Trust

Confidential Interviews Invited.

DOCTORS administer to the sufferings of the living and bring them comfort.

THIS BANK administers to the estates of the dead and brings to them protection and economical administration.

Let us have your will prepared without cost to you.

MERCHANTS NATIONAL BANK
RICHMOND, VIRGINIA

Capital. Surplus and Undivided Profits over $2,400,000.00

"SAFEST FOR TRUSTS"

Virginia Medical Monthly

OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

Vol. 51, No. 12.
WHOLE No. 873.

RICHMOND, VA., MARCH, 1925

$2.00 A YEAR
20 CENTS A COPY

CONTENTS.

ORIGINAL COMMUNICATIONS:

Lugol's Solution of Iodine in the Treatment of Exophthalmic Goitre. I. A. Bigger, M. D., University, Va. ---- 735

Treatment of Diabetes Mellitus—A Review of a Year's Work at the University of Virginia Hospital. H. B. Mulholland, M. D., University, Va. ---- 737

Radium in the Treatment of Certain Non-Malignant Gynecological Conditions. W. Lowdnes Peple, M. D., Richmond, Va. ---- 742

The Function of the Perineum and Its Restoration When Injured. Charles R. Robins, M. D., Richmond, Va. ---- 745

Ectopic Pregnancy: An Analysis of Ninety-Five Cases. Frank Helvestine, Jr., M. D., University, Va. ---- 747

Concentrated Milk Feeding (Acid Milk) in Young Infants. St. Geo. T. Grinnan, M. D., Richmond, Va. ---- 750

Report on the Intravenous Use of Arsenic (Arsphenamin) in Certain Septic Conditions. James H. Smith, M. D., Richmond, Va. ---- 755

A Review of Operations on the Thyroid at St. Elizabeth's Hospital, Richmond, Virginia, for Year Ending October 10, 1924. J. Shelton Horsley, M. D., Richmond, Va. ---- 762

A Practical Method of Blood Vessel Suture. E. L. Kendig, M. D., Victoria, Va. ---- 765

Observations in Tuberculosis Clinic Work. Edgar C. Harper, M. D., Richmond, Va. ---- 768

Toxic Blindness: Report of Two Cases. Clarence Porter Jones, M. D., F. A. C. S., Newport News, Va. ---- 773

Some Features Regarding the Clinical Course and Treatment of Epidermoid Carcinomas of the Skin. S. W. Budd, M. D., Richmond, Va. ---- 776

Why Are So Many Physicians Such Easy Marks for Fake Promoters? James M. Miller, M. D., Crockett, Va. ---- 780

Nervous and Mental Manifestations Following Chronic Intoxication with Valerian. Alfred Gordon, M. D. Philadelphia, Penn. ---- 782

The Abduction Treatment of Fracture of the Neck of the Femur. Bernard H. Kyle, M. D., Lynchburg, Va. 785

THE TRUTH ABOUT MEDICINE ---- 786

CORRESPONDENCE ---- 789

EDITORIAL ---- 791

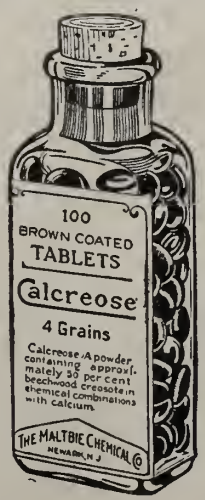
NEWS NOTES ---- 794

OBITUARY ---- 802

INDEX OF ADVERTISERS—Advertising Page 5.

CALCREOSE

R. Ramsden Wade reports (Brit. M. J., 1: 158, Jan. 24, 1925) having had good results from the administration of creosote in the treatment of cases of influenzal pneumonia and chronic influenza, which are very liable to be mistaken for phthisis.



CALCREOSE (calcium creosotate) is a mixture containing in loose chemical combination approximately equal weights of creosote and lime. It has the pharmacologic activity of creosote, but apparently does not have any untoward effect on the stomach.

POWDER—TABLETS—SOLUTION

Samples of Tablets on Request

The Maltbie Chemical Company, Newark, New Jersey

THE DOCTOR'S METHOD

OF

MILK MODIFICATION

FOR INFANTS

Every physician has a method of feeding infants under his care. Much depends on his instructions being carried out.

The Mead Johnson Policy prevents outside interference and doctors find that Mead's Dextri-Maltose, cow's milk and water, gives gratifying results in the majority of infants under their care.

THE MEAD JOHNSON POLICY

MEAD'S Infant Diet Materials are advertised only to physicians. No feeding directions accompany trade packaes. Information in regard to feeding is supplied to the mother by written instructions from her doctor, who changes the feedings from time to time to meet the nutritional requirements of the growing infant. Literature furnished only to physicians.

MEAD JOHNSON & COMPANY
MAKERS OF INFANT DIET MATERIALS
EVANSVILLE, INDIANA, U. S. A.

MEAD'S DEXTRI-MALTOSE

Virginia Medical Monthly

Official Organ of the Medical Society of Virginia

Vol. 51, No. 12.
WHOLE No. 873.

RICHMOND, VA., MARCH, 1925

20 CENTS A COPY
$2.00 A YEAR

Original Communications

LUGOL'S SOLUTION OF IODINE IN THE TREATMENT OF EXOPHTHALMIC GOITRE.*

By I. A. BIGGER, M. D., University, Va.

In 1820 Coindet showed that iodine reduced the size of the thyroid gland in goitre cases. Following this report, and others, it was used rather frequently in the treatment of thyroid enlargement. It was found that it often accentuated the symptoms and the treatment fell into disrepute. Kocher among others advised against its use except in certain selected cases.

Baumann, in 1896, isolated iodothyrin from the extract of the thyroid gland. In 1914 Kendall isolated thyroxin and in 1915 proved it to be the active principle of the thyroid secretion.

Marine and his co-workers reported, in 1917, excellent results in the prevention of simple goitre in man by the administration of sodium iodide given in small doses. They were able to make one-third of the fully developed cases disappear.

The first attempt to treat exophthalmic goitre with iodine on a large scale was made by Plummer and his associates in 1922. In a recent article Plummer and Boothby report approximately 600 cases treated with iodine in the form of Lugol's solution. They found the optimum dose to be ten drops daily but as much as thirty drops daily was given in severe cases. Lugol's solution was used because it contained a large amount of loosely combined iodine. No case of undoubted exophthalmic goitre was made worse and the majority showed definite improvement. He estimates that two-thirds will be greatly benefited, one-fourth slightly improved, and one in twenty will show no improvement.

Starr and his co-workers report twenty-five cases treated with Lugol's solution in the Massachusett's General Hospital. Eighty per cent showed definite improvement and 48 per cent showed remissions as rapid as those following subtotal thyroidectomy. In their experience the metabolism rate tends to return to its original level in from one to two months —even though the iodine is continued. However, Mason, of the Royal Victoria Hospital in Montreal, is treating a series of cases with continued small doses, and reports hopeful results.

A. S. Jackson reports over thirty patients treated with iodine with an average reduction in the basal metabolic rate of 20 per cent. In his opinion ligation may be eliminated by its use in about 75 per cent of the cases.

In the University of Virginia Hospital we have treated fifteen patients clinically diagnosed as exophthalmic goitre. Fourteen showed marked improvement with a rapid drop in the metabolic rate and decrease in toxic symptoms. One patient showed an increase of 10 per cent in the metabolic rate although the clinical and pathological diagnosis was exophthalmic goitre. The average reduction in the metabolic rate in this series was 36 per cent, the greatest reduction 54 per cent, and the most rapid reduction 48 per cent in five days. The average basal pulse rate was reduced from 113 to 88 per minute. The average time during which iodine was administered was fourteen days.

We are unable to explain an average loss of two pounds in weight as all other toxic symptoms were definitely decreased.

The following cases are reported in some detail:

Case I. Mr. E. H., white, age 35 years, admitted to the University of Virginia Hospital, April 24. 1924. Complaint, nervousness and weakness. For the past five years patient noticed he was becoming increasingly nervous and had lost thirty pounds in weight. He was not aware of any exophthalmos or enlargement of the thyroid gland. His symptoms had become more marked within the past eighteen months. Physical examination showed a very nervous, somewhat emaciated white man. The positive findings were moderate exophthalmos with a characteristic stare, moderate symmetrical enlargement of the thyroid gland, heart slightly enlarged to the left with a very force-

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

ful beat, rate 120. There was a very distinct fine tremor. The laboratory findings on April 26, 1924, were: Blood pressure 140 systolic, 70 diastolic, basal metabolic rate plus 71 per cent, weight 131 pounds. Diagnosis exophthalmic goitre. This patient was ordered absolute rest in bed, regular diet, and Lugol's solution, minims fifteen daily. On May 8, twelve days later, his pulse was 96 per minute, basal metabolic rate plus 17 per cent, and with a corresponding decrease in his nervous symptoms. On May 13th a partial thyroidectomy was done under nitrous oxide anesthesia. Convalescence uneventful. The pathological diagnosis was exophthalmic goitre.

Case II. Mrs. G. F., white, age 35 years. First examined June 11, 1923. Complaint nervousness and goitre. Nervousness was noted about one year before admission, and enlargement of the thyroid gland for three months.

Physical examination showed a well nourished woman. No definite exophthalmos but slight enlargement of the thyroid gland. Examination of heart and lungs was negative. There was a well marked fine tremor. June 11, 1923, laboratory findings were: Blood pressure 120 systolic, 80 diastolic, basal metabolic rate plus 43 per cent, weight 104¾ pounds, basal pulse rate 120 per minute. This patient was ordered absolute rest in bed for two weeks. On June 27th the metabolic rate was plus 43 per cent, basal pulse rate 140 per minute, weight 103½ pounds. She was then put on the previous routine and given Lugol's solution, minims fifteen, daily. July 26, 1923, twenty-nine days later, the metabolic rate was plus 15 per cent, basal pulse rate 85 per minute, weight 114 pounds. On August 4, 1923, partial thyroidectomy was done under nitrous oxide anesthesia. Uneventful convalescence. The pathological diagnosis was adenoma of the thyroid. This case shows the advantage of rest and the administration of Lugol's solution over rest alone.

Case III. Miss S. K., white, age 31 years. Admitted to the University of Virginia Hospital April 29, 1924. Complaint, nervousness, goitre, loss of weight, and shortness of breath. She was diagnosed exophthalmic goitre in 1918 and ran a course characteristic of that disease. There was a loss of thirty-five pounds in weight within three months before admission.

Physical examination shows an extremely nervous woman. Marked exophthalmos with the left eye more prominent than the right. There was considerable enlargement of the thyroid gland, the left lobe being larger than the right. Examination of the heart showed the apex beat in the sixth interspace, 10½ cm. from the mid-sternal line, irregular rhythm, no pulse deficit. A low systolic murmur was heard best at the apex and transmitted to the axilla. The lungs showed a few moist rales at both bases. Laboratory findings April 30, 1924; basal metabolic rate plus 72 per cent, basal pulse rate 108 per minute; blood pressure 160 systolic, 80 diastolic; weight 141 pounds. The patient was ordered absolute rest in bed, powdered digitalis leaves, grains 1½, and Lugol's solution, minims 15, daily. Ten days later, May 10, 1924, the metabolic rate was plus 25 per cent, basal pulse rate 60 per minute. Patient was kept on the same treatment until May 19, 1924, when the metabolic rate was plus 31 per cent, basal pulse rate 58 per minute, weight 122½ pounds. Four days later partial thyroidectomy was done under nitrous oxide anesthesia. The day following operation she developed auricular fibrillation, which was readily controlled by digitalis; the convalescence was otherwise uneventful. Pathological findings, exophthalmic goitre.

The lowest metabolic rate recorded in this case was plus 25 per cent and, although iodine was continued for nine days after this determination, the rate rose to plus 31 per cent.

It is of interest to compare the results obtained in this series of fifteen cases treated by rest and the administration of Lugol's with a similar number immediately preceding them, treated with rest, the administration of bromides, cold packs, etc.

Series No. 1. (Those not treated with iodine) showed on admission an average basal metabolic rate of plus 49 per cent. Three cases came in in crisis and are not included in the above average because it was impossible to make a metabolism determination. Four died under medical treatment, one with a metabolic rate of 106 per cent on admission, and the three that came in in crisis. Ligation of both superior thyroid arteries was done in seven cases with one death. Two did not return for thyroidectomy. There were seven thyroidectomies with no deaths. Three were primary and four followed ligation. One patient refused surgical treatment.

Series No. 2. (Those treated with iodine) showed on admission an average metabolic rate of plus 59 per cent. It was not thought neces-

sary to ligate any case and thirteen had primary thyroidectomies with no deaths. Two cases refused surgical treatment; one of these was treated with radium and the other with small doses of Lugol's solution.

The average post-operative temperature and pulse curves in the two series are very similar. The average pre-operative period in the cases treated with iodine was twenty-four days while in the series treated by rest and ligation it was forty-nine days.

In 1915 Plummer stated that the symptoms in adenoma with hyperthyroidism were due to an excessive production of normal thyroxin. He believed, however, the symptoms in exophthalmic goitre to be due chiefly to the production of an abnormal product, with probably some increase in the amount of thyroxin formed. In a report before the Association of American Physicians in 1923 Plummer suggested that the incompletely iodized thyroxin molecule produced in exophthalmic goitre was capable of entering into a catabolic reaction faster than the normal product, hence it gives a higher degree of toxicity. By increasing the supply of iodine the character of the molecule is changed with relief of the toxic symptoms.

At the Mayo Clinic definite cases of adenoma with hyperthyroidism are not treated with iodine. When exophthalmic goitre cannot be definitely eliminated iodine is used, but only under careful observation and frequent metabolism determinations.

Summary

In our series of fifteen cases treated with iodine, fourteen responded satisfactorily, one reported as showing parenchymatous hyperplasia did not respond.

The pathological report in eleven of the thirteen thyroidectomies was exophthalmic goitre, one was reported as adenoma, and one as degenerating colloid goitre.

Conclusions

1. Iodine is of great value as a pre-operative measure in the treatment of exophthalmic goitre.

2. Ligation is necessary in only a small percentage of cases when iodine is used.

3. It is very important to make a differential diagnosis between exophthalmic goitre and adenoma with hyperthyroidism.

4. In doubtful cases, iodine may be used as a diagnostic measure, but only under very careful observation, and frequent basal metabolism determinations.

5. The pre-operative period is distinctly shortened by the use of iodine.

6. Operation should be performed as soon as the metabolic rate reaches a base line.

7. We have not used iodine in any case over a sufficiently long period to determine its value as a curative agent.

Bibliography.

1. Coindet: Quoted by Plummer and Boothby, 1924.
2. Kocher. Quoted by Rost. Pathological Physiology of Surgical Diseases. (Rost). Philadelphia, 1923. P. Blakiston's Son & Co.
3. Marine, D. & Kimball, O. P., Jour. Lab. and Clin. Med., 1917, 3401.
4. Plummer, H. S., and Boothby, W. M. The Value of Iodine in Exophthalmic Goiter. Jour. Iowa State Med. Soc., February, 1924.
5. Starr, Paul; Walcott, H. P.; Segall, H. M.; Means, J. H. The Effect of Iodine in Exophthalmic Goitre. Archives Int. Med. Vol. 34, No. 3., page 355.
6. Jackson, A. S. Preoperative Treatment of Patients with Exophthalmic Goitre with Special Reference to Lugol's Solution of Iodine. Am. Jour. Surg., Vol. 37, page 315, Dec., 1923.
7. Mason, E. H. The Use of Lugol's Solution in the Treatment of Exophthalmic Goitre. Canadian M. A. J., 14:219-221, March, 1924.
8. Plummer, H. S. Results of Administering Iodine to Patients having Exopthalmic Goitre. J. A. M. A. Vol. 80, No. 26, p. 1925.

TREATMENT OF DIABETES MELLITUS—A REVIEW OF A YEAR'S WORK AT THE UNIVERSITY OF VIRGINIA HOSPITAL.*

By H. B. MULHOLLAND, M. D., University, Va.
Department of Internal Medicine, University of Virginia Hospital.

With the discovery of insulin and the development of a balanced diet, the treatment of diabetes mellitus has undergone many changes in the past few years. Lives which were previously hopelessly abandoned can now be saved. The ultimate results of any treatment can only be reckoned by a careful follow-up of cases. With this in view, an analysis of a year's work at the University of Virginia Hospital is attempted. It is realized that the conclusions drawn in this length of time cannot be final, but the work is to be continued.

Until recent years the under-nutrition method of Allen was generally used in the treatment of this disease. The essentials of this diet were a low carbohydrate, low protein, and low total caloric intake. In 1920, Newburgh and Marsh brought out their high fat, low carbohydrate,

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, at Staunton, October 14-17, 1924.

low protein diet. Patients have done well on both of these diets. The objection to the first mentioned can be made that it makes the patient an economical loss rather than an asset, and in the latter the diet is rather inflexible, the preponderance of fats making the diet monotonous. Following the work of Shaffer, who showed that two molecules of fatty acid can be burned up by one molecule of glucose, many formulae for computing the diabetic diet have been forthcoming, those of Woodyatt and Wilder being the most notable. A little over one year ago, we adopted the method of computing the diet as used in the Toronto General Hospital by Campbell[1], which has been used sucessfully for a period of over two years in that clinic. This is essentially a balanced diet, in that the total glucose will theoretically account for more than the fat derived from the diet. In general, the following methods have been used in the treatment of sixty-three cases admitted to this hospital from September 1, 1923, to October 1, 1924. In the uncomplicated case the patient has been weighed and measured, the surface area determined from a DuBois scale, and the total calories required to maintain the patient at rest for twenty-four hours, according to age, sex, and surface area read from an Aub-DuBois table. Protein is allowed in the amount of two-thirds of a gram per kilogram of body weight (except in children and the aged where the allowance must be higher), and the carbohydrates and fats calculated to make up the rest of the calories. In the majority of instances the mild diabetic will rapidly become sugar free on this diet, which is certainly an improvement over the old method of starvation. When once sugar free, the same diet is maintained for two to three days, to allow rest of the pancreas, and then increased at regular intervals, adding five grams of carbohydrates and twenty grams of fat, until approximately 600 calories above the basal requirement is reached. Just before the patient is discharged eight grams of protein are added. If the patient must do active work, more total calories are allowed. However should the patient not become sugar free, a fairly constant urinary excretion of glucose is reached, and enough insulin, based on one unit to every two grams glucose excreted, is given in three doses, twenty minutes before each meal. It has been shown that the average unit of insulin will metabolize one and one-half grams of glucose. Allowing two grams to every unit gives a margin of safety and prevents insulin shock. When the urine is sugar free the diet is increased as shown above, and the insulin increased as indicated. Thirty-four cases became sugar free on basal diet alone, twenty-five cases requiring insulin to render the urine sugar free.

Marked acidosis and coma require drastic and urgent treatment. Every patient showing acetone has a carbon dioxide combining power (Van Slyke) of the venous blood done on admission. We have found that this with the clinical picture gives us the most valuable information in guiding our treatment in a given case. In marked acidosis or coma, insulin is administered intravenously, in twenty to forty unit doses, at two hour intervals. Orange juice, or other easily assimilable form of carbohydrate is given, following the insulin, to the proportion of about one gram per unit of insulin. We feel, with other workers in this field, that in giving massive doses of insulin, it is well to have this carbohydrate available in the body. It is notable that most of these patients have been able to take fluids by mouth. We now have in the hospital a patient who came in with a carbon dioxide combining power of eleven volumes per cent, who could be aroused and made to take fluids readily. However, fluids and glucose can be administered by rectum, subcutaneously or intravenously, if necessary. In the latter case it is given very slowly at the rate of five c.c. of a ten per cent solution per minute. Soda is administered in doses not exceeding thirty grams in twenty-four hours. Bock *et al*[12] have shown that soda is of great value in the treatment of certain cases of coma, and there is at present no practical clinical method available for picking out these cases. This line of treatment is pursued until the combining power of the venous blood reached about fifty volumes per cent, which is a safe level. The insulin dosage is decreased as the acidosis decreases. No rule can be set regarding this, but the clinical picture along with the laboratory findings guide one's course.

When the combining power returns to normal, the patient is then placed on a basal diet, the insulin is continued, ten units before each meal, and diet increased as indicated above. The patients have frequent estimations of blood sugar, carbon dioxide combining power and urinalysis. No case of marked acidosis or

coma can be properly treated without these laboratory examinations. In emergencies insulin can be given as long as the urine shows large quantities of sugar. Twenty to forty units of insulin given in cases of coma or impending coma, by the family physician, will often save the patient's life and tide him over until a laboratory is available. If the acidosis is of long duration, coma cases will be lost in spite of insulin treatment. Tissue damage, which cannot be repaired, will have taken place, and, therefore, energetic and early treatment is advocated.

Infection, heretofore one of the most dreaded complications of diabetes, can now be combated successfully. Carbohydrates and proteins are given in ample quantities, and insulin is practically always required. The fats are kept at a low figure to lessen the acidosis. The insulin dosage here must be relatively greater, because in these cases it is less effective per unit dosage.

We realize that it is futile to treat diabetics unless they are taught the fundamentals of dietetics. The educational side of the treatment is therefore stressed. Either the patient or some member of his family is schooled until he is able to figure out the diet and make substitutions therein. Blackboard talks beginning with a simple explanation of the nature of their disease, the reason for treatment, nature of ordinary food-stuffs, and ending with diabetic arithmetic, are given to all patients who are able to read and write. Of course, at the outset they are bewildered by the apparent maze of problems presented to them, but in a very short time they are able to figure out their own diets, and make substitutions therein. In the diet kitchen they are shown how to weigh out the food, and the preparation of special diabetic food is demonstrated. This all takes time and is trying on the staff, but the results are well worth the effort. In a general hospital, such as ours, many of the patients belong to the unintelligent class, and the problem of treatment outside the hospital presents greater difficulties. Our experience, however, shows that these are not insurmountable. This type of patient is sent out with several diet lists with specific instructions about substitutions, using the ordinary household measures instead of a weighed diet. This, of course, is not practicable in severe cases requiring insulin, but fortunately our patients taking insulin have possessed enough intelligence to plan their diet, or have had someone in the family capable of planning it for them. The patients taking insulin are taught the symptoms of insulin shock, the method of combating it, and the administration of insulin. Each patient, able to read, is provided with a diabetic manual.

Having sketched the general outline of treatment, I will go on to an analysis of our cases and the results obtained. During the period mentioned sixty-three cases of diabetes mellitus were admitted to this hospital, the youngest case being five years of age and the eldest eighty-seven years of age. The age incidince is given in Table I.:

Table 1.

1-10	3 cases
11-20	4 cases
21-30	4 cases
31-40	8 cases
41-50	14 cases
51-60	8 cases
61-70	15 cases
71-80	6 cases
81-90	1 case

The majority of our cases were between the ages of thirty and seventy. Twenty-nine (46%) were males and thirty-four (54%) females. There were forty-nine white patients (78%) and fourteen colored patients (22%). In the total admissions to the medical service in this hospital for the years 1921-22 and 1922-23, the percentage of white to colored patients was eighty-three and seventeen per cent respectively. Therefore, comparatively speaking, in this series diabetes is as frequent in the colored race as in the white race.

In these sixty-three admissions there were five deaths in the hospital. One died from uremia, resulting from prostatic obstruction, two from septicemia following carbuncle (both cases had positive blood cultures and necropsy showed abscesses in various organs), one from apoplexy, and one from an operation for gall-bladder disease. None of these cases showed evidence, either clinical or laboratory, of coma before death. Two cases are known to have died since leaving the hospital, one a severe nephritic with a kidney functional test of ten per cent and blood urea of 160 mgs. per 100 c.c. of blood; this case died from a chronic nephritis. The other, a boy of fourteen years of age, died in coma two weeks after leaving the hospital. This boy showed a severe acidosis, but his mother insisted on taking him home, even though the danger of such a course was thoroughly explained to her. This gives a total

mortality of eleven per cent. It is notable that not a case of coma was lost in the hospital during this period. In the previous year, before insulin was available, there were eight deaths in this hospital from diabetes in thirty-eight cases, of which number seven died in coma.

Seven cases (11%) gave a definite history of diabetes occurring in the immediate family. Forty-nine cases either came in with a diagnosis of diabetes or had characteristic symptoms over a long period before admission. In fourteen cases, sugar had been accidentally found shortly before admission, or it was discovered in the hospital as a result of routine urinalysis.

The duration is shown in Table II.:

Table 2.

1 year or less	39
2 years	4
3 years	5
4 years	1
5 years	3
6 years	1
7 years	1
8 years	2
9 years	1
12 years	1
16 years	1
20 years	2
Unknown	2

Twenty-seven cases were without complications, eleven were admitted in acidosis or coma, and twenty-five presented other complications.

Seven cases were discharged on insulin, and three additional cases have since required a small amount of insulin to keep them sugar free. In four cases the patients left the hospital showing sugar because they refused adequate treatment. Twenty-seven of the patients are still on a diet and are sugar and symptom free. Of the number discharged on insulin, which would be classed as severe cases, all are doing well, except the boy who died in coma, and one patient who remained sugar free until her only son was drowned. Since then she has taken no interest in living and at last advice was showing sugar. It is a well known fact that emotional disturbance temporarily diminishes carbohydrate tolerance. Eight patients left the hospital against advice, and are probably not adhering to their diet. Two are known to have broken diet, but say they are doing well. The remainder were sugar free when last heard from, or have been discharged recently from the hospital.

One case, who was admitted with sugar in the urine, acidosis, and a carbuncle, one and one-half years ago, on a recent admission showed a tolerance for 250 grams of carbohydrate before showing sugar.

In the severe cases no definite gain in tolerance has been noted, with one exception. A young man, twenty-six years of age, who has had diabetes for eight years, has been able to discontinue his insulin. Several patients receiving insulin have had to have it increased. One case increased from fifteen units to twenty-four units daily, and one from forty-four to forty-eight units daily. These results in general agree with those of other clinics.

Juvenile diabetes, almost without exception, presents the most severe type of the disease; therefore, it perhaps might be of interest to report the five cases occurring in this series in a little more detail:

Case 1.—W. V., age, twelve years, male. Admitted November 9, 1923. Two weeks before admission he developed enuresis, and lost interest in his surroundings. His doctor found sugar in his urine. On admission he showed a heavy reduction of Fehling's with one drop of urine. Carbon dioxide combining power 27.87 vols. per cent. Blood sugar 200 mgs. per 100 c.c. of blood. He was discharged December 5th on carbohydrates 55 grams, proteins 35 grams, fats 160 grams without insulin. Readmitted January 28, 1924, with blood sugar 235 mgs. per 100 c.c. blood. Carbon dioxide combining power 44. He had broken his diet. Put on diet and insulin, but left the hospital shortly after admission against advice, and died two weeks later in coma.

Case 2.—J. K., female, age, fourteen years. Admitted November 12, 1924. Three days before admission, developed headache and vomiting, and her family phyician found sugar in the urine. This patient showed a clinical picture of impending coma, drowsiness, deep respiration, fast pulse and acetone breath. Blood sugar 452 mgs. per 100 c.c. of blood, acetone and diacetic strongly positive. Carbon dioxide combining power was not done in this case.

She was discharged twenty-one days after admission on carbohydrates 60 grams, proteins 55 grams, fats 150 grams, without insulin. She has shown sugar once since that time during a cold, which readily disappeared on a small amount of insulin. On her first admission her weight was 69.5 pounds. She now

weighs 90 pounds and is living a normal life with the exception of her diet. A recent admission to determine tolerance showed that sugar appeared in the urine when 80 grams of carbohydrate were given.

Case 3.—J. D., male, age five, admitted December 20, 1923. Two weeks before admission, developed polyuria, increased appetite and thirst. One day before admission his family physician found sugar. He presented the clinical picture of severe acidosis. Blood sugar 323 mgs. per 100 c.c. of blood, carbon dioxide combining power 33 vols. per cent, five per cent sugar in the urine, weight 37 pounds. He was discharged thirty days after admission on carbohydrates 50 grams, proteins 22 grams, fats 80 grams. Since leaving here he has been to Boston where the proteins were increased. He was discharged without insulin, but now requires 10 units insulin a day and occasionally shows sugar. There has been no increase in weight in this case.

Case 4.—R. S., female, age, ten, admitted February 4, 1924. Sister died of diabetes. One week before admission, her parents noted that she was listless, had increased thirst and polyuria. Her family physician found sugar, and sent her in. She had the clinical picture of diabetic coma, blood sugar 448 mgs. per 100 c.c. of blood, carbon dioxide combining power 22.2 vols. per cent. She was discharged thirty-one days after admission on carbohydrates 55 grams, proteins 30 grams, fats 125 grams, without insulin. Weight 46 pounds.

Readmitted April 4, 1924, because of slight trace of sugar. She rapidly became sugar free in the hospital on same diet.

Readmitted August 11, 1924, showing sugar. She was sent out on same diet, and 12 units of insulin per day. Weight 55 pounds.

On October 3, 1924, she was sugar free. Weight 57 pounds.

Case 5.—Ruby P., female, age, twelve. Admitted March 29, 1924. She came in complaining of loss of weight and constipation over a period of one year. For past three weeks she has had polyuria and thirst. She presented the clinical picture of severe acidosis. Urine full of sugar, acetone and diacetic acid. Blood sugar 500 mgs. per 100 c.c. of blood. Carbon dioxide combining power 21.6 vols. per cent. Weight 60 pounds. This case presented a very difficult problem as it was hard to balance her diet and insulin, and keep her sugar free. She was discharged seventy days after admission on carbohydrates 55 grams, proteins 46 grams, fats 135 grams, weight 71 pounds, 44 units of insulin per day.

She has been readmitted several times since then because of complications and sugar in the urine. Her insulin is now 48 units per day, given in four doses. The last dose was split in two parts in order to control a morning glycosuria. The latter condition is found frequently in children. She was last seen on October 10th and did not show any sugar. Weight 82 pounds.

Two cases in patients, aged nineteen and twenty years respectively, who show sugar when the carbohydrates are raised above 250 grams in twenty-four hours, and who show a diabetic curve in the sugar tolerance test, are being followed with a good deal of interest. In a year's observation there has been no change in tolerance.

From our analysis and observation during the period mentioned the following conclusions are made:

1. That a balanced diet has proved to be a satisfactory method in the management of these cases.

2. Laboratory examinations are essential in the treatment of the severe cases, and a complete study should be made of every new case of diabetes.

3. Heredity played a suggestive part in a small number of these cases.

4. Diabetes in our series is as frequent in the colored as in the white race.

5. No definite increase in tolerance is noted in the cases receiving insulin. On the other hand, no marked decrease in tolerance is demonstrated.

6. Permanent insulin therapy was required in sixteen per cent of the cases reported.

7. Four cases of juvenile diabetes have been carried along successfully, one without insulin.

8. The ward type of patient has been educated in the fundamentals of the disease and dietetics with satisfactory results.

Bibliography.

1. Campbell, *Journal Canadian Medical Association*, July, 1923.
2. Bock *et al.*, *Journal Metabolic Research*, Vol. 4, Nos. 1-2, July and August, 1923.

Discussion.

Dr. Douglas VanderHoof, *Richmond*: The essential features in the treatment of diabetes have been admirably presented by Dr. Mulholland. It might be well, however, to emphasize the great responsibility of the family physician who is suddenly called to a patient on the verge of diabetic coma. Only

prompt, energetic and intelligent treatment can prevent a catastrophe. This fact was forcibly impressed on me very recently in the case of a woman who had previously been treated for a moderately severe diabetes and who left the hospital sugar-free on an adequate diet supplemented by ten units of insulin twice a day. In spite of explicit written directions, she subsequently stopped the insulin and then became careless in her diet. Finally, definite acidosis developed and, after some delay, she was transported from her home in another State, many miles by train, to the hospital in Richmond. On admission, she was in deep coma of some hours' duration and, in addition to her acidosis with high blood sugar, etc., her blood showed 66 mg. non-protein nitrogen per 100 c.c. After heroic treatment with insulin both intravenously and subcutaneously, together with nearly 5000 c.c. of fluid (intravenously, hypodermically, by rectum and by nasal tube), she came out of her coma in 24 hours and was conscious for some hours. To our dismay, however, she excreted only 210 c.c. of urine the first day, and then it was found that her non-protein nitrogen had risen to 97 mg. Two days later she died, not of diabetic coma but of uremia, with non-protein nitrogen 130 mg. and practically complete suppression of urine in spite of very large quantities of fluid introduced.

Dr. MacNider, of Chapel Hill, and others, have shown how very susceptible the kidneys are to increased amounts of acid in the blood. A diabetic patient threatened with acidosis should not be transported to a hospital but should have immediate treatment with insulin in sufficient doses. No elaborate laboratory investigations are possible or even necessary in such a situation. All the attending physician needs to do is to examine the urine every two hours for sugar and give insulin every two hours in just sufficient doses to render the urine sugar free. Only in this way can acidosis be warded off with its peculiar damaging effects on the kidneys. The danger of insulin shock is slight and, if it occurs, can be immediately controlled by small amounts of orange juice by mouth.

Dr. J. C. Flippin, *University*: There are many interesting and still unsettled questions relating to the treatment of diabetes mellitus in spite of the notable advances made in the past several years. I believe the greatest good the patients who come in the University Hospital derive is from attending Dr. Mulholland's "School of Diabetes." He meets these patients in small groups and gives them a brief outline of the nature of the disease and the principles upon which treatment is based. With patience and perseverance it is surprising to see how much these patients may be taught about the treatment of their trouble. Many of our patients are, of course, people of relatively little education and oftentimes of limited intelligence. With few exceptions each one can be taught how to select diet best suited to his individual case from the common articles of food. We fully realize the futility of bringing patients to the hospital, getting them sugar free and making even so careful a study of their metabolism and then sending them home without any knowledge of the proper way of caring for themselves. The problem is very similar to that of tuberculosis; the most valuable thing a patient often gets from residence at a tuberculous sanatorium is a knowledge of the disease and how best to care for himself in future. The problem with the diabetic is a very similar one.

RADIUM IN THE TREATMENT OF CERTAIN NON-MALIGNANT GYNECOLOGICAL CONDITIONS.*

By W. LOWDNES PEPLE, M. D., Richmond, Va.

Every man worthy of the title of Physician, whether he practice medicine or surgery or one of its specialties, has but one goal before him—the restoration of his patient to health with the least possible damage to him, physically, economically, and I might add, psychically.

We treat an eye with meticulous care for months before we decide upon enucleation. We treat a hand that is infected or a foot that is crushed with time and care and pains and patience before we agree to amputation. But in the past we have not been as fair in deciding with the female reproductive organs. We have not exercised the same care and patience and thought in their preservation. These organs occupy a peculiar position in that it has often in the past been necessary to remove the uterus, for instance, where only moderate structural changes were present, and at times where the disorder seemed purely functional. There were many grave problems to be met, and the introduction of radium has solved a number of them for us. With it we can relieve symptoms and restore health, at the same time preserving organs and ofttimes retaining their functions as well.

Abnormal uterine bleeding has long been a serious problem in that it had to be frequently met with serious operations. Here I would like to stress the importance of the preservation of the female reproductive organs whenever possible, even though they are deprived of their function. Unquestionably, the mere knowledge of their loss has often had a serious, not to say disastrous, effect upon the patient. If, then, in addition to their physical preservation, there is the possibility of child-bearing, there are still many, many women left in the world who regard this as a blessing.

If we leave out post-puerperal states and malignancy and disease of the uterine adnexa, there are but four or five conditions that give rise to uterine bleeding, and it is to these that radium is especially applicable, namely:

1. The so-called myopathic bleeding in young women.
2. The fibroid tumor.
3. The fibroid uterus.
4. The relaxed subinvoluted uterus.

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

5. Hypertrophic glandular endometritis.

Before going into the different types of cases, and the methods to be used, it may be well to lay down certain general principles to be followed and to have in view certain ideals as to results to be obtained. It is imperative in every case that an accurate, positive, and differential diagnosis be made before the treatment is undertaken. Radium is not a remedy for bleeding, but for many conditions which cause bleeding.

In young women especially the minimum dosage must be chosen to attain a cure, to relieve symptoms, and yet not to precipitate the menopause, or to leave the patient sterile.

Unless the surgeon is a physicist he should associate himself with one who is expert in the handling of these agencies to attain the best results. One must be positive in the case of a fibroid tumor that it is a fibroid and not a pregnant uterus or an ovarian cyst. We must exclude pus tubes, appendicitis and pelvic abscess, or the case may terminate disastrously, for radium either by lowering tissue resistance or by stimulating to activity the infectious organisms, will almost invariably fan even a smouldering infection into flame. One should not enter lightly upon the use of this agent in the young woman, for sterility and cessation of menstruation are likely to follow its use, even when cautiously administered. One should rather think of it as a next-to-a-last resort in the young woman—an alternative to hysterectomy.

To point a case: In profuse bleeding which we sometimes see in young girls, even when it has gone on for some time and there is anemia, and the uterus has become large and its mucosa swollen and engorged, its os patulous, irradiation should not be resorted to until curettage, hot astringent douches, rest in bed and tonic treatment have failed. For, while it is true that with a small dose of radium many cases continue after a while to menstruate normally, and a fair number have become pregnant and gone to term, still there are many others that have become or remained sterile and in whom the early permanent menopause has become established.

In the case of fibroid tumors, the different authorities are fairly agreed as to certain basic principles. In young women with nodular fibroids, myomectomy should always be done if there is no contra-indication, such as a profound anemia. If the woman is under thirty-five a small dose should be given even if a second treatment has to be given later. No tumor larger than a four months' pregnancy should be irradiated. Pedunculated and serous growths should be treated surgically, else they may undergo necrosis and some of the nodules actualy slough off into the abdomen. If the tumor is adherent, or if there is accompanying disease of the ovaries, surgery is indicated. In properly selected cases of fibroid tumors treated by irradiation we may confidently expect hemorrhage to stop and the growth to be greatly reduced or to disappear altogether.

The fibroid uterus, in contra-distinction to fibroid tumor of the uterus, is a condition that frequently confronts us. The woman fortunately is usually in the late thirties and oftener in the forties and nearing the menopause. The uterus is large, its wall hard and stiff, and the cavity is usually large with a scant thin mucosa. She is losing more blood at her periods than she can make up between times. The only alternative to hysterectomy is irradiation, and the results are most gratifying.

The Relaxed Subinvoluted Uterus: Here we have a large flabby uterus with a white cervix, with a patulous os and an oozing endometrium. These are oftener in the multipara in the forties, and there is usually a pronounced anemia when we first see them, and we hear the old story again about the "change of life" through which she believed herself to be passing. Here the only alternative to hysterectomy is irradiation, and in many of these women, weakened by anemia, with accompanying kidney and heart disease, hysterectomy is a hazardous venture. We welcome any agent that would get us over this difficulty or even stop the bleeding long enough to make an operation safe.

Hypertrophic Glandular Endometritis: This condition occurs oftener in the late thirties or early forties. It is characterized by marked increase in the glandular epithelium of the mucosa. The uterine glands are greatly increased both in number, depth and vascularity. Thorough curettage will at times relieve it, but when this fails radium will be found a safe, simple and useful way of avoiding hysterectomy.

When it comes to a choice of the two methods of treatment—surgery or radium—one should have many factors in mind which have a distinct bearing on the individual case. He should choose the surest, simplest and safest method

that will give permanent relief. He should think of the economic side of it in terms of time and expense.

I have been extremely fortunate in my work in having Dr. S. W. Budd, with whom I work daily, to help me in solving many of these problems.

In the use of radium I practically always give an anesthetic; it allows a more thorough examination of the uterine adnexa, and by using the curette we often get helpful, positive or negative information, and one is more certain that the radium is properly placed.

To illustrate the importance of thorough examination of a case before using radium, I did a preliminary curettement on a case with long, continued bleeding and marked anemia. The tissue removed from the fundus of the uterus proved to be adeno-carcinoma. A complete hysterectomy was done, and up to the present, though nearly two years have elapsed, there has been no local or metastatic return. Had I been content to use radium here for bleeding without ascertaining its cause I would have made a serious mistake, for carcinoma in the body of the uterus, if in an operable stage, is conceded by all to be a surgical condition.

To summarize then, there are many advantages to radium over surgery in properly selected cases:

First, there is no mortality.

Second, there is a minimum stay in the hospital.

Third, in cases with cardio-vascular disease or diabetes, it is a most grateful alternative.

Results: Although my results have been most gratifying, I prefer to report those of other workers who have a larger number of cases.

John O. Polak, in the *Medical Record*, March, 1922, reports 106 cases of fibroid tumors treated with radium. In 104 the bleeding stopped and never recurred after the first menstruation. In two, which were large, submucous tumors, bleeding recurred and hysterectomy had to be performed. He reports 260 women with fibroid uteri so treated, and states that there have been no failures to check bleeding, and in the majority the uterus has taken on a senile character after a few months.

The report of Leda J. Stacy, of Rochester, Minn., in the *American Journal of Roentgenology* for August, 1920, reviews 300 cases of menorrhagia treated with radium with results almost paralleling those of Polak. She reports three cases of full-term pregnancy in sixty-nine married women under thirty-five years of age who had radium treatment.

Practically all operators find that with small dosage the menstrual function can be retained in a large proportion of cases, even though there be a temporary suspension for several months or even a year.

Discussion

Dr. Hugh H. Trout, *Roanoke*: Dr. Peple's paper is too well presented not to merit a full discussion, though, like everything he has ever written, he has left but little for any one else to say.

One class of cases he failed to mention, and in this class we have found radium of great value. Those classes in which there has been done a supracervical hysterectomy we have found advantageous to place twenty-five or fifty mgm. of radium, in what remains of the cervical canal, to be withdrawn through the vagina in about twenty-four hours.

Smead, of Toledo, Ohio, has shown there is a very perceptible percentage of cases having cancer in the stump of the cervix, after supracervical hysterectomies done for fibroids of the body of the uterus. The placing of radium will certainly decrease, if not entirely eliminate, such a possibility, and the placing of radium in this locality also prevents, or cures cervicitis so frequently seen in such cases.

Dr. Chas. R. Robins, *Richmond*: It would be difficult for me to get up a discussion on the paper that Dr. Peple has just read, because I agree with him most heartily in all that he says. I think it is well, however, to remember that as far as radiation in the treatment of disease is concerned that it is not a cure for everything. Hemorrhage from the uterus is a symptom and it may be due to a number of causes. It is undoubtedly true that radiation does have a marked tendency to relieve hemorrhage from the uterus. It may be due to causes that are best treated by operation. When we come to consider the means of treatment, we have not only to ask, will the treatment produce certain results, but is it the best treatment that can be used? Experience has shown that radiation is becoming limited to certain specified conditions. In others, operation will be necessary to effect a cure. In order to secure the best results from radiation, a very careful painstaking diagnosis must be made and only those cases selected in which it is clearly indicated; otherwise, the results will be disappointing and the cures incomplete.

Dr. W. Lowndes Peple, *Richmond*, closing discussion: The point I want to bring out in this paper is that radium is not a remedy for hemorrhage, but a remedy for certain conditions which cause hemorrhage.

I wish to emphasize the necessity for careful study and painstaking diagnosis in all cases that are to be treated by radium. In properly selected cases it is a valuable aid to surgery.

THE FUNCTION OF THE PERINEUM AND ITS RESTORATION WHEN INJURED.*

By CHARLES R. ROBINS, M. D., Richmond, Va.
Professor of Gynecology, Medical College of Virginia, and Gynecologist to Associated Hospitals; Surgeon to Stuart Circle Hospital.

Injuries to the perineum and their repair belong to the Genesis of Gynecology, and it would seem that anything added to what has already been written on the subject would be superfluous. Yet it is profitable once in a while to check up any subject to see if the working theories are correct and the result secured satisfactory. It is certain that many of the classical operations fail to restore the function of the perineum, and I think we can say that when a perineum has been definitely injured that the complete restoration of the function is often difficult. The object of this paper is to review briefly the more important points associated with the subject. I would not claim any great amount of originality in what I am about to present, because the views I hold and the procedures which I have found most useful are not only the result of a rather large personal experience and observation but also embrace points gained from other sources.

The perineum represents the point of convergence of various muscles and fasciae which have as their combined function the closure of the vaginal orifice, acting in this way as a sphincter. The ordinary round sphincter muscle would not be adequate for an orifice that is to permit the passage of a full grown foetus without necessary injury. The closure is effected in the first place by the course and shape of the vagina. By its connection with various fasciae it is held in such a position that when the patient is standing the anterior wall rests upon the posterior, or more correctly speaking, the posterior wall comes up under the anterior. The action of the muscles is such that they respond to any pressure from above, so that when the patient coughs or in anyway increases the pressure from above, the muscles contract to a corresponding degree to resist this pressure. If a patient with a normal perineum is examined in the standing position it will be seen how perfectly this closure is effected. The effect of this closure is to make the pelvis a closed cavity, and, while the figure of speech is not entirely accurate, it does convey the correct idea when it is likened to a vessel containing water, where pressure at any point in the vessel is equal in all directions. Under such conditions pressure from above is received on the outlet to the pelvis, while the contents of the pelvis are not particularly affected. When an injury of the perineum occurs that is of such a nature that it impairs the function of closing the vaginal orifice, the action is not altogether unlike that when the plug is removed from the bottom of the basin of water, the contents have a decided tendency to come out. It is not intended to convey the idea that this is the only physical factor concerned, because the pelvic contents have certain fascial and ligamentous attachments that have a very strong supporting tendency, but the fact remains that this support is inadequate if the perineum does not close the vagina, and, consequently, any operation dealing with the various forms of prolapse and displacement that does not restore the perineum will be doomed to failure.

The injuries of the perineum are, of course, most frequently those associated with labor. Penrose, many years ago, gave a classification of injuries of the perineum that is, I believe, entirely correct in principle and is one that I have continued to follow because it is the classification that expresses the true scientific injuries. He divided them into two general classes: First, the median laceration, and second, the laceration in the vaginal sulci. It will be observed that all of the muscles and the planes of fascia are in pairs which comes down from either side and unite in the middle. Therefore, median lacerations do not in any way injure the function of the perineum already referred to. The median laceration simply divides the point of insertion but does not injure the structure itself. Consequently, we do not have the various eversions and prolapses associated with this form of laceration. I have seen median lacerations which extended through to the anus and high in the vaginal septum which had no prolapse associated with them whatever. On the other hand, the lacerations in the vaginal sulci are lateral lacerations and tear through the structures themselves, so that the fasciae and muscles are injured and their functions more or less impaired, depending on the extent of the injury. It is in such cases that the vagina remains patulous and eversion and prolapse come on.

While we do not have prolapse with the median laceration, we do have a very definite and serious injury when the tear extends into

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

the anus, dividing the sphincter ani muscle. In these cases we have loss of control over the bowel. This loss varies a great deal, most frequently manifesting itself only as far as gas is concerned or when the patient has a diarrhoea or has taken medicine, but when the injury is extensive the control of the bowel may be entirely lost, so that the patient may be unaware of a bowel movement until it has actually taken place. When we are dealing with this type of laceration, the principles involved in repair are comparatively simple; they consist of denudation of the cicatricial tissue with demonstration of the sphincter ani muscle and thorough exposure of the ends. Suture is not difficult because the fasciae and muscle have not been displaced and lie opposite each other, so that the perineum is easily reconstructed.

The chief point in the operation is the suture of the sphincter muscle so that control of the bowel may be re-established. The principal cause of failure in this type of operation lies in the danger of infection of the suture line from the rectum. In order to obviate this, I have found two expedients very useful. The first is to protect the suture line from the anus by dissection of the rectal tube on its anterior aspect, so that it may be drawn down, thus protecting the suture line instead of attempting to suture the rectal tube *in situ*. The other point is to secure an early fluid movement of the bowels. Enemata I have found for some reason to be very dangerous and very liable to cause infection; consequently, I never use them. On the second day following the operation the patient is given frequent small doses of a saline purgative, usually citrate of magnesia. This produces a fluid stool which does not distend the anus and, consequently, does not pull on the recently sutured sphincter, and these fluid movements are kept up until union is complete, usually about ten days. If a hard fecal mass is formed it will be very likely to do considerable damage and destroy the result of the operation.

The other type of operation, however, is a much more complicated affair. When the muscles and fasciae have been injured and retracted and become to a certain extent functionless, we have a number of changes that take place and increase progressively. We will not refer in this paper to cystocele and abnormal conditions of the anterior vaginal wall, although these cases require very complete restoration of the perineum to prevent recurrence. No perineorrhaphy, however, will cure a cystocele after it is once formed. When the function of the perineum has been impaired in the manner stated, certain very definite phenomena take place. The vagina, instead of being closed, remains patulous. The anus, which normally is held high in the anal cleft, drops backward and downward. The whole perineum presents a relaxed appearance and gives easily to pressure in any direction when the finger is introduced into the vagina. There is a tendency to eversion of the vagina which is markedly increased when the patient strains down, and often there is a marked protrusion of the posterior vaginal wall or rectocele. The rectum and vagina come in close contact throughout the entire area of the vagina. Often this relaxation interferes very materially with proper defecation. As time goes on, these changes in the perineum becomes more marked. At the same time that these changes are taking place in the lower genital tract, equally pronounced changes are taking place in the pelvis. On account of the incomplete or insufficient closure of the vagina, the pressure from above, instead of being received on the structures closing the vagina, is expended upon the pelvic contents, and we have a constantly increasing sagging of these organs, with the development of relaxed ligaments, passive congestion, displacement and prolapse. The early restoration of the perineum is always indicated as a prophylactic for these pelvic changes. We cannot expect it, however, to be curative after the changes have once become fully developed, and proper means must be adopted to overcome these changes. Unless, however, the function of the perineum has been restored, the condition will recur.

In order to understand what we should accomplish by operation on the perineum we should have a definite mental picture of what the normal conditions are. We have in the first place a perineum that is held up snugly under the symphysis. The perineum does not end at the hymen but extends some little distance beyond, so that the hymen normally is placed well within the vaginal orifice. Neither does the perineum form an apex at the site of the hymen but it represents a broad surface of approximately an inch. This is the thickness of the pelvic floor and the vagina for this distance represents an opening extending directly inward. After this distance is passed the vagina

curves backward. These points can be readily verified by examination. The point is that the restoration of the perineum must contemplate a broad surface and a few stitches applied from the skin surface cannot possibly effect restoration. In performing the operation, the first thing is to remember that the posterior wall of the vagina has become prolapsed and usually presents a rectocele with the lower portion of the vagina and rectum in contact throughout. Any method of denudation that does not overcome this cannot possibly succeed. In order, therefore, to get a picture of how to approximate the prolapsed posterior wall of the vagina, it should be pushed well up. Having done that we then begin to see how the perineum should look.

The Denudation.—I usually denude with the semi-circular incision around the muco-cutaneous margin of the posterior vagina. This is dissected with the knife until the free space underneath the skin is entered, when the separation is completed with blunt scissors. The separation is carried high up on the lateral walls of the vagina and extends backward for a distance of one inch or more. After this has been completed, the flap of mucous membrane of vagina is removed with scissors. In determining the amount of tissue to remove, we consider first the amount of tissue necessary to leave on either side, so that it will come together easily in the mid-line. Having determined how much flap to leave, the incision is made on either side with scissors on a line parellel to the course of the vagina and extending inward for approximately one inch or slightly more. These are connected with a transverse cut across the vagina and the tissue removed.

Obliteration of Rectocele.—It will often be found that the rectum and vagina lie in close contact. In order to prevent a recurrence of the rectocele, the vagina and rectum must be separated quite widely. The suturing is then done as follows: First, a continuous suture of iodized catgut is started on the apex of the vaginal denudation, as, otherwise, it would be difficult to put in the suture after the buried sutures have been placed. We then proceed to suture the deep structures. The first stitch is introduced at the point which corresponds to the internal aspect of the levator ani. I usually use chromic catgut for this purpose. It should be some material that is not too quickly absorbed. The stitch commences right under the mucous membrane of the vagina, catches up a section of the levator muscle and then takes a bite in the tissues lying immediately anterior to the rectum, and comes up again on the other side in the same manner. About three or four of these stitches are necessary. When they have been tied, it will be found that not only will we have constructed a perineum that approximates normal conditions, but it will be one that is controlled by muscular action. After the deep sutures have been tied, the vagina is united by the iodized catgut suture already mentioned. This process of suture is continued until the site of the hymen is reached, which makes a very good land mark. At this point a further denudation of the skin perineum is made by cutting away all scar tissue with a pair of scissors. It will usually be found in these cases that the transversus perinei muscles have retracted to some extent and by making this denudation somewhat wide they can again be approximated. This is done usually with two buried sutures of chromic catgut, and after the rounded perineum has been formed as it exists normally, the skin is sutured with the end of the iodized catgut suture. It will be found that after these procedures have been completed, instead of having a perineum that has been elongated by infolding tissue, we have a perineum that is short and held up snugly under the symphysis. It will also present a broad surface in the vagina that will close the vagina properly. It will also be controlled by muscular action and is usually devoid of scar tissue. In addition, the rectocele has disappeared. A finger introduced in the anus and another in the vagina will demonstrate that the vagina and rectum do not come in apposition except at the normal point which is approximately a little over an inch within the anus. I believe that this method very nearly restores the perineum to normal condition and I have found in follow-up cases that it is sometimes almost impossible to make out that the perineum has been injured at all.

ECTOPIC PREGNANCY: AN ANALYSIS OF NINETY-FIVE CASES.*

By FRANK HELVESTINE, Jr., M. D., University, Va.
Department of Surgery and Gynecology, University of Virginia Medical School.

From 1 to 2 per cent of all gynecological cases are ectopic pregnancies. Farrar, of the Woman's Hospital, New York City, gives an

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, at Staunton, October 14-17, 1924.

incidence of 1.5 per cent and Wynne, reporting a series of cases from the Johns Hopkins Hospital, gives an incidence of 1.3 per cent.

This paper is based on the data obtained from the records of ninety-five patients operated upon at the University of Virginia Hospital during a period of about fifteen years.

The clientele of a Southern hospital with charity wards differs markedly from one in the North. In our series of cases, fifty-four or 56.8 per cent of the patients were white and forty-one or 43.2 per cent were negroes. The report from Johns Hopkins Hospital shows only 33 1/3 per cent of their cases to have occurred in the colored race. This does not mean that the negro in the North is less subject to the condition than that of the South but most probably that the proportion between the white and negro patients is different.

Our records are not so arranged that the relative frequency with which extra-uterine pregnancy occurs in the white and negro patients can be ascertained. In Wynne's report the incidence in the negro was greater than in the white, the ratio being about six to four.

Our youngest patient was eighteen years of age and the oldest forty-four years of age. Fifty-six per cent of the cases occurred in patients from twenty-five to thirty-five years of age inclusive, and 96 per cent occurred between the ages of twenty-one to forty inclusive.

In the series of ninety-five cases there were two unmarried women, five widowed and two divorced. Two-thirds of the cases had not been pregnant more than twice; 17.2 per cent had had no pregnancies; 28.5 per cent had had one pregnancy, and 20.9 per cent had two pregnancies. One of the patients had been pregnant eleven times, the twelfth pregnancy being extra-uterine.

Symptoms had been present from four to eight weeks in 86 per cent of cases. Pain was present in all but one case. It varied widely in degree and character. In some instances it was sharp and lancinating, while in others it was of a dull character. A large percentage of patients described their pain as cramp-like, comparing it with labor pains. In 55 per cent of the cases there was a history of acute attacks with severe pain. In some cases the patient had several attacks of gradually increasing severity. The seat of the pain was usually either in the right or left lower quadrant of the abdomen or across the entire lower abdomen.

Very few of the patients gave a history of missing a menstrual period; a delay in the appearance of the menstrual flow was most often the rule. In some cases menstruation became more frequent. Seventy-three per cent of the cases gave a history of uterine hemorrhage. Bleeding would most frequently be noticed following an attack of pain.

Nausea and vomiting accompanied the attacks of pain in forty-one cases, and nausea alone occurred in fourteen cases. A history of dizziness and fainting was obtained in twenty-two cases. Complete loss of consciousness occurred in only a small number of these patients. Sixteen of the patients were in various degrees of shock upon admission to the hospital.

The temperature on admission was in the majority of cases not over 100° F. The average temperature for the cases with tubal ruptures and abortions and the unruptured cases was 99.6° F. The tubo-abdominal cases averaged slightly higher. The pulse rate in the cases of tubal rupture and tubal abortion averaged 93 to the minute; the unruptured cases averaged 86, and the cases of abdominal pregnancy had an average pulse rate of 104. In most cases the respiratory rate was slightly increased; the average rate was 22 to the minute. The highest temperature recorded was 103° F., the highest pulse rate was 140 to the minute and the highest respiratory rate was 36 to the minute. As a rule the cases in which there was an accompanying pelvic inflammatory disease gave the highest temperature, pulse and respiratory rates. The leucocytes in the cases of tubal rupture and tubal abortion averaged 11,000; in the unruptured cases 8,000, and in the cases of abdominal pregnancy 16,000. In the cases of tubal rupture and abortion the hemoglobin averaged 71 per cent, the abdominal pregnancies 36 per cent, and the cases of unruptured tubal pregnancies 77 per cent. The Wassermann reaction was only recorded twenty-three times and in just one case was it reported positive.

On examination the abdomen was found to be distended in thirty-seven patients. In eight of this number movable dullness could be made out in the flanks. In 50 per cent of the cases there was tenderness across the whole lower abdomen, and in others tenderness was present in either the right or left lower quadrant of the abdomen. Tenderness was, in the majority of cases, accompanied by rigidity. In

some cases an abdominal mass could be palpated, but this was not the rule.

Vaginal examination showed the cervix to be softer than normal in 90 per cent of cases, and in the majority some enlargement of the uterus was noted. A mass was palpable posterior to the cervix in the cul-de-sac in 38 per cent of cases; in 28 per cent in the right vaginal fornix; in 19 per cent in the left vaginal fornix, and in 4 per cent in both lateral fornices and the posterior cul-de-sac. In 11 per cent no masses were palpable. The masses were usually quite tender, fluctuant, and were described as feeling velvet-like.

Tubal abortions and tubal ruptures comprised 68 per cent of the series. These types are grouped together because in some of our earlier histories the pathological description was not full enough to distinguish between the two. Twenty-nine per cent showed the tube to be unruptured, and 3 per cent were of the abdominal type. The pathology was found on the right side in 60 per cent of cases and in 40 per cent on the left side.

An accompanying pelvic inflammatory disease was found in 55 per cent of the cases, ovarian cysts in 7 per cent, and myomata uteri in 3 per cent. Four per cent of the patients had a retrodisplaced uterus and 2 per cent had a previous operation at which time the uterus was suspended for this trouble. Two of the patients had had previous operations for ectopic pregnancy.

In ninety-one patients an abdominal operation was performed, while in the remaining four a pelvic puncture alone was done. An unilateral salpingectomy was done in sixty-three patients, and in twenty-seven there was a double salpingectomy. One ovary was removed in forty-seven cases, both ovaries removed in seven cases, and the uterus removed in six cases.

There were five deaths in our series—a percentage of 5.2. Of these five, two died of pulmonary embolism a number of days following operation; one died of a post-operative intestinal obstruction, one from hemorrhage and shock, and one of shock following an extensive operation in which the large bowel was torn.

Post-operative complications were not often met with. Femoral thrombosis occurred in two cases, pulmonary embolism in two cases (in one of these cases embolism followed a femoral thrombosis), intestinal obstruction in one case, pleurisy in one case, and post-operative insanity in one case.

Discussion

In only a small number of cases of extra-uterine pregnancy does the tragic text-book picture obtain. For diagnosis of this condition the history is more important than a physical examination. In the great majority of cases a diagnosis can be made if the history, physical examination and laboratory data are combined and correlated.

Pain is the most constant symptom and it is only in a few unruptured cases with slight bleeding into the decidua that it is not present. It is more often cramp-like than lancinating. A careful menstrual history is most important to arrive at a correct diagnosis. A few cases will give a history of having missed one or more periods, some will give a history of menorrhagia, some a delay of several days from the time the period is due and then a menorrhagia from its onset. Some of the patients menstruate two or more times a month. In some cases there is a continuous metrorrhagia. A history of the passage of clots or fleshy masses is very suggestive. Polak and Welton have shown that a decidual reaction may be found at several points in the tube in ectopic pregnancy, often far remote from the seat of implantation. Coincident with the separation or death of the ovum by hemorrhage into the decidua there is bleeding from the uterus and also from the several points of decidual reaction in the tube.

Nausea and vomiting are present in about half the cases due to the peritoneal irritation from the intra-abdominal hemorrhage.

Ectopic pregnancy has to be differentiated from pelvic inflammatory disease, torsion of ovarian cysts or Fallopian tubes, and at times appendicitis.

Pelvic inflammatory disease is a very frequent accompanying condition to extra-uterine pregnancy. In a large number of cases it is looked upon as a causative factor. Other pathological conditions are frequently present, such as cystic ovaries and myomata. Developmental defects, principally hypoplasias, are thought in some cases to be responsible for the condition. Previous abdominal operations, especially uterine suspensions, are frequently incriminated.

The treatment of these cases is, of course, operative. In those patients in which hemor-

rhage has not been very severe and who show no shock operation can be done at the surgeon's leisure. Concerning the treatment of the cases seen in shock, the so-called tragic cases, there is some dispute among gynecologists as to whether immediate operation should be undertaken or time should be allowed for the patients to react from their shocked condition. There is no certainty that hemorrhage is going to cease and it has not been our custom to temporize with these cases.

REFERENCES.

Farrar, 1919, *Amer. Jour. Obst.* Vol. LXXIX, p. 733.
Polak and Welton, 1922, *Amer. Jour. Obst. & Gynec.* Vol. III, p. 164.
Wynne, 1919, *Johns Hopkins Hosp. Bull.* XXX. p. 15.

CONCENTRATED MILK FEEDING (ACID MILK) IN YOUNG INFANTS.*

By ST. GEO. T. GRINNAN, M. D. Richmond, Virginia.

The study of growth during the early period of infancy is of especial interest to all physicians. Many infants are not so fortunate as to have breast milk and some have breast milk but in insufficient quantity. The greatest trouble in infant feeding occurs during the first two years of life. It is to this class that our attention is especially directed, the premature being also considered.

The failure of diluted cow's milk to produce proper growth and development has directed the attention of the physician to a more careful study of cow's milk.

We know that protein is the essential element of growth. Protein is composed of a number of amino-acids, important among which are lysin, cystin and tryptophan. The lactalbumin of woman's milk contains important amino-acids in abundance. Cow's milk has a much smaller proportion of amino-acids than woman's milk, hence, the percentage of protein in woman's milk is not a guide to the percentage of protein necessary in cow's milk. A much larger percentage of protein must be used in cow's milk feeding if proper growth is to be maintained.

Vegetables are poor in amino-acids and proper growth cannot be maintained on vegetable protein. It is as amino-acids that nearly all nitrogen is absorbed. Infants have a remarkable faculty for retaining nitrogen.

*From the Department of Pediatrics, Medical College of Virginia, Richmond, Va.
Read at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

(NOTE.—*In all of the formulas given W. L. M. represents whole lactic acid milk. Fifty per cent K. reprcsents fifty per cent Karo syrup. The numerals are ounces. All feedings are at four hour intervals. The acid milk used is either whole cultured acid milk or acidified with lactic acid.*)

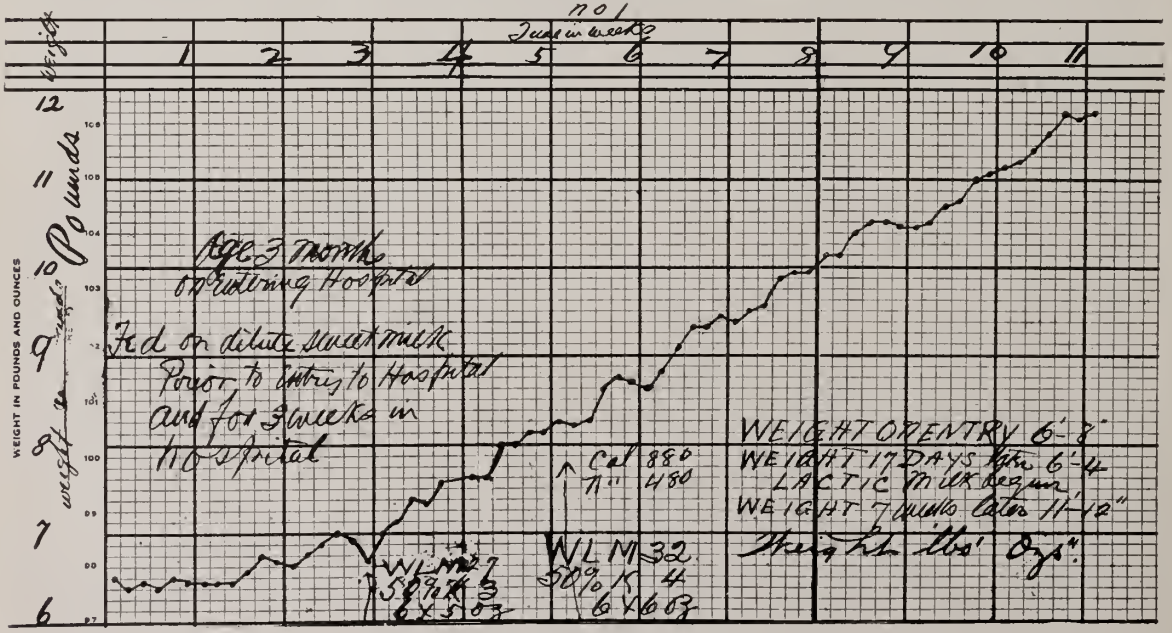

Weight
Pounds
WEIGHT IN POUNDS AND OUNCES
Age 3 months on Entering Hospital
Fed on dilute sweet milk Prior to Entry to Hospital and for 3 weeks in Hospital
WEIGHT ON ENTRY 6-8
WEIGHT 17 DAYS Later 6-14
LACTIC MILK Begun
WEIGHT 7 months Later 11-12

CHART No. I.
Infant, age 3 months, fed on dilute sweet milk with sugar and soda, prior to entering hospital, and for 3 weeks in the hospital. Changed to whole lactic acid milk with remarkable gain, almost doubling weight in two months.

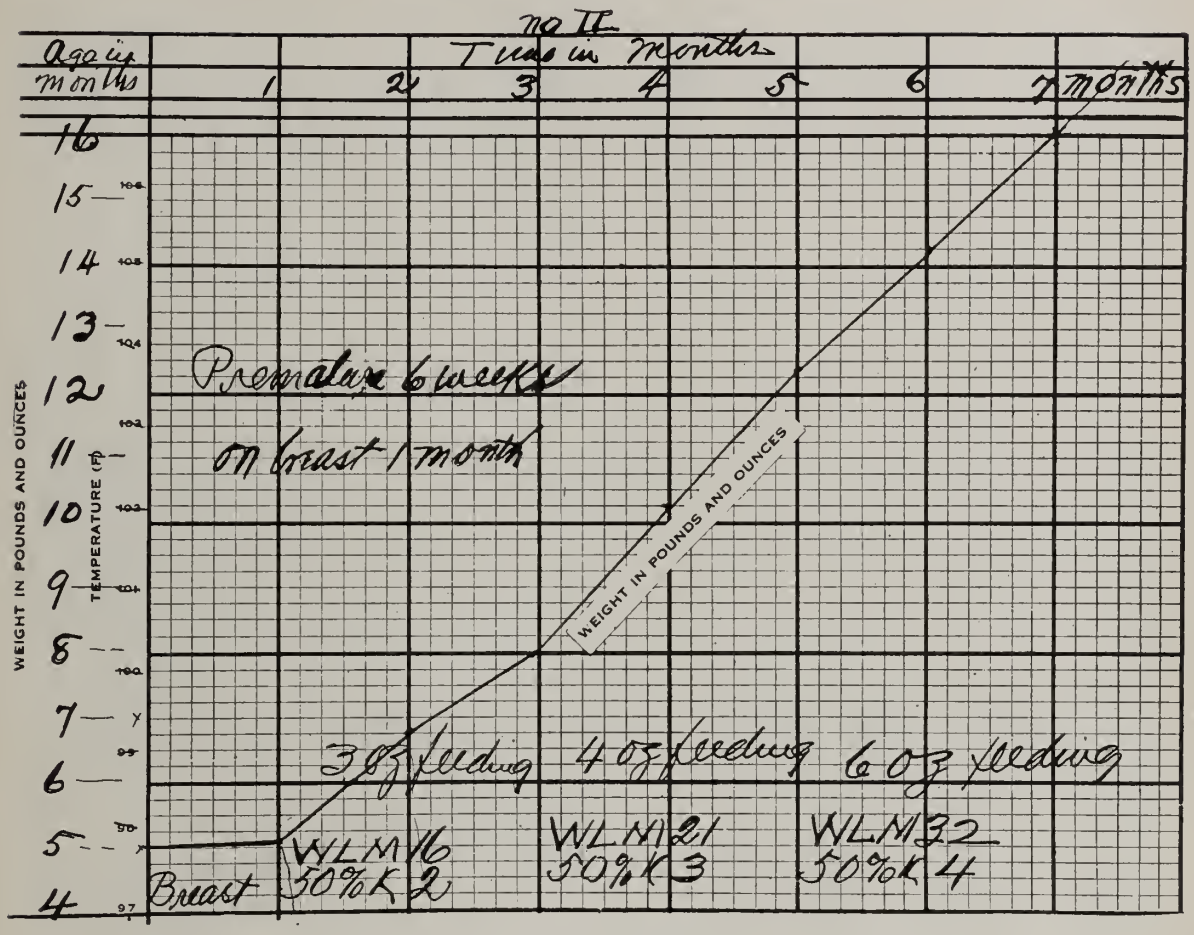


CHART No. II.

Premature infant weighing 5 lbs., fed one month on the breast; No gain. Changed to whole lactic acid milk with continuous gain.

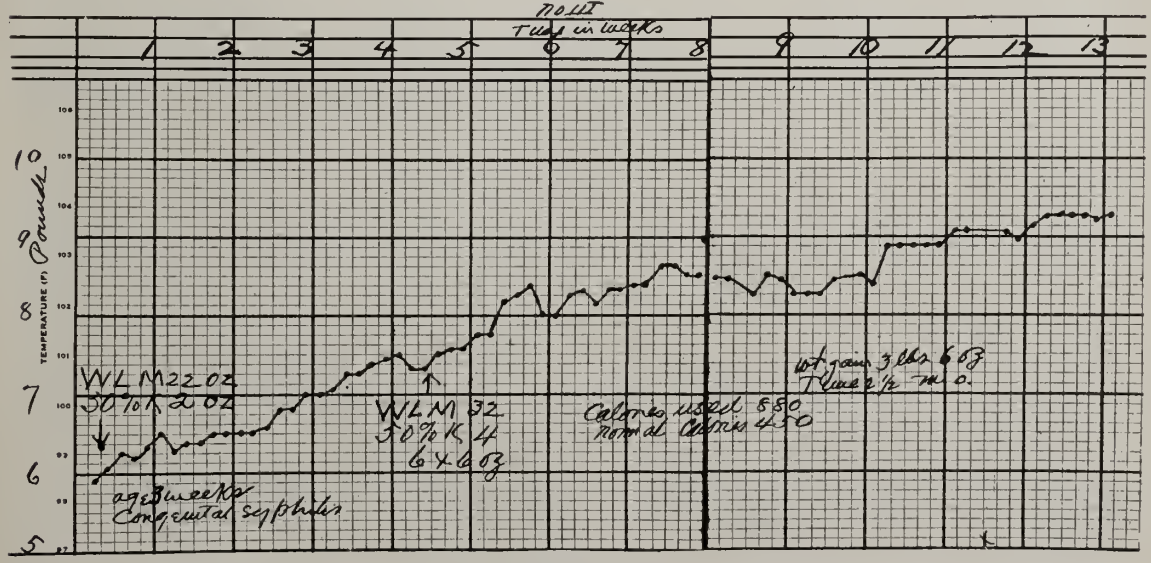


CHART No. III.

Congenital syphilis. Continuous gain. The calories are larger than the normal requirements. Concentrated whole lactic acid milk used.

Protein furnishes the colloid or swelling substance for growth.[1] Carbohydrates take no part in cell construction but cause protein retention and the retention of salts and water. It has been said that protein burns in the flame of carbohydrate. High carbohydrate feeding is necessary in cases that need more hydration and protein construction.

Remove or lower carbohydrates and we have decreased hydration, decreased protein retention. The hydration caused by carbohydrates is a loose hydration and this hydration may be quickly lost as in the case of high sugar and low protein. If we have a high protein and low carbohydrates, we have a more stable hydration.

It is not possible for us to consider a larger study of protein, but we can easily see that this important substance should not be reduced.

The "law of minimums" holds. One component deficient causes lack of growth. Normal infants gain twenty to thirty grammes daily. An infant is seventy-five to eighty per cent water as compared with sixty-five to seventy per cent for an adult. It is thus easier for an infant to take protein freely without hyperthermia. Increase protein without increasing water and we may expect a dynamic

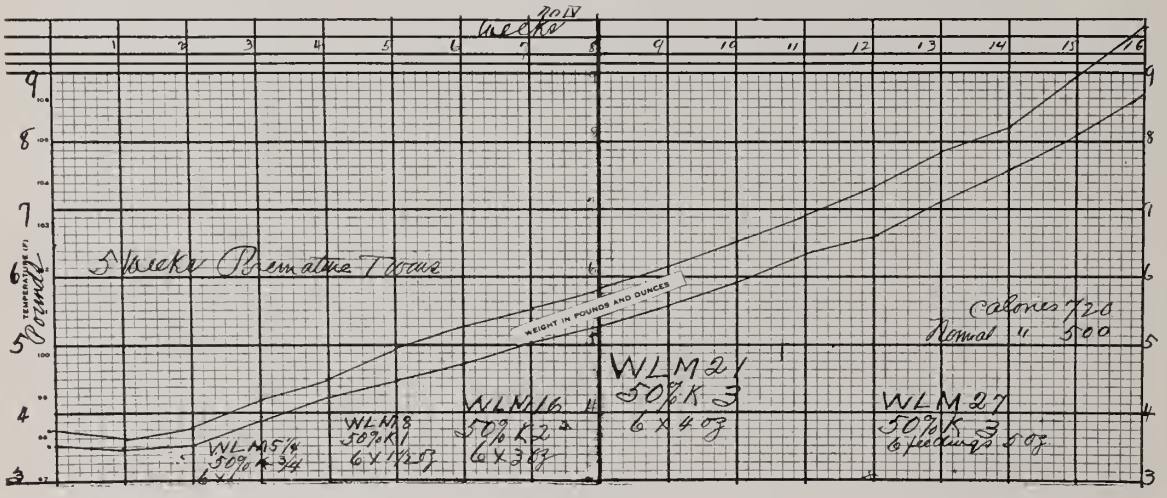


CHART No. 1V.

Twins, premature 5 weeks, weighing less than 4 pounds. Fed on whole lactic acid milk with continuous gain.

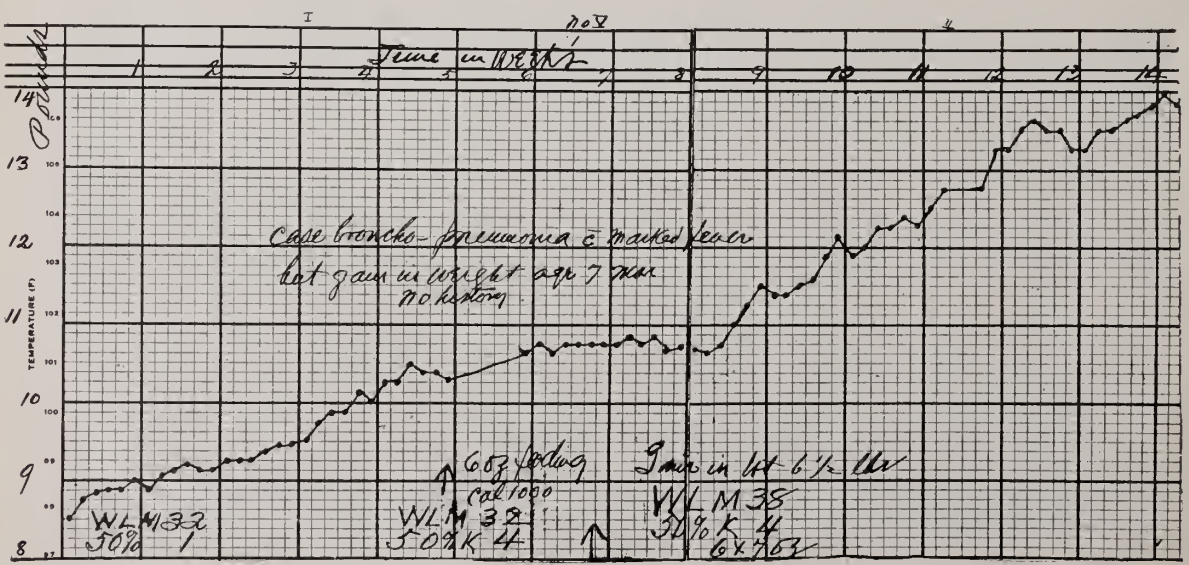


CHART No. V.

Case of broncho-pneunomia with high fever, age 7 months. Continuous gain in weight on whole lactic acid milk.

hyperthermia, but milk is eighty-seven per cent water and water prevents or reduces the temperature produced by high protein. For this reason protein should be reduced in fever. Alkali is necessary for growth. Colloid swelling progresses on a larger scale in the presence of an alkali.[2] Calcium is in solution in an acid medium; therefore, alkali and calcium are antagonistic. The stomach content is normally acid and the intestine normally alkaline. The retention of calcium to potassium acid or alkali which may be added, thus nullifying their effect.[3]

"It is free hydrogen ions which are responsible for the characteristic properties of all acids. Various foods have the property of binding large amounts of acid and converting the hydrogen into a non-ionized form, thus to all intents and purposes neutralizing the acid. The food of this class renders the hydrochloric acid secreted inactive. Cow's milk has three times as much buffer substance as woman's

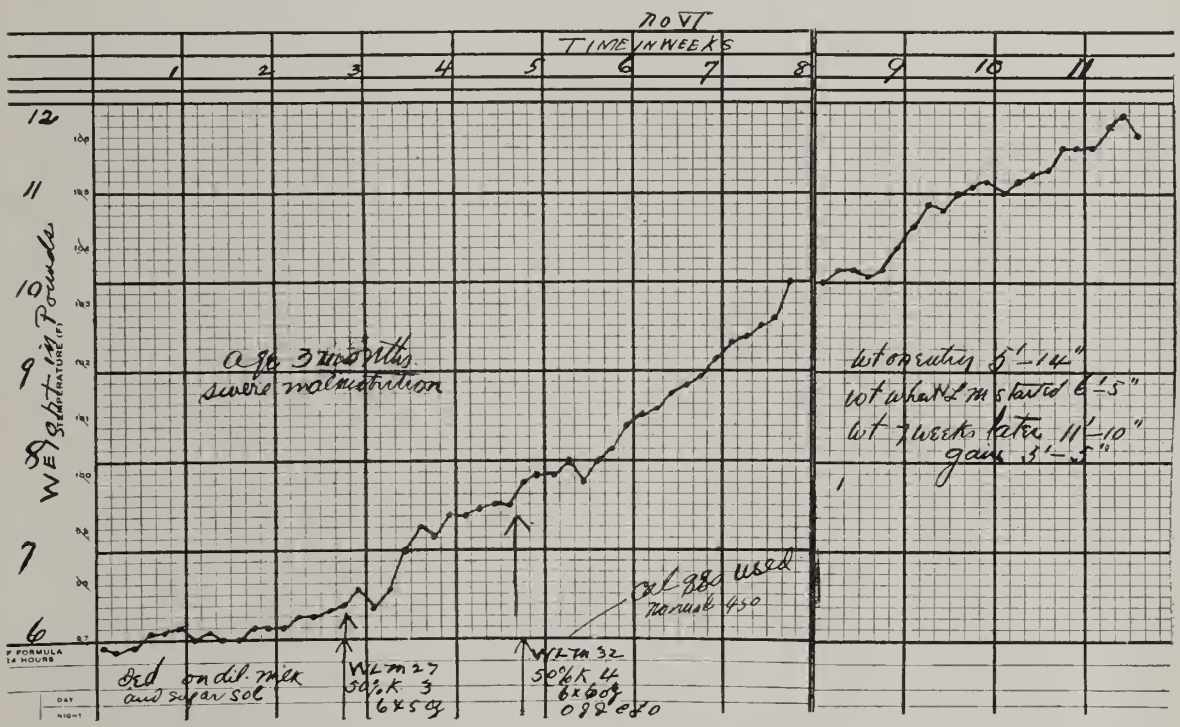


CHART No. VI.

Severe malnutrition, age 3 months. On entering hospital had been fed on diluted sweet milk with sugar and soda. This feeding continued nearly three weeks in the hospital. Note the rapid change when lactic milk was begun.

sodium is important and the normal balance must be maintained for health and growth.

The inorganic salts enter and leave the body quite unchanged and seem foreign to living process. Inorganic salts are of vital importance. Inorganic salts make possible electrolytes which maintain electric charges and produce chemical reactions that put life in proteins.

"There are chemical buffers which act chemically to preserve neutrality. A buffer is any substance (present in a solution) which because of its affinity for either acid or alkali tends to preserve the original H-ion concentration of the solution by combining with any milk. On breast milk, the Ph. has been found to be 3.75 normal infants. On cow's milk, feeding normal infants, the Ph. is 5, 3.[4] As the Ph. is expressed in the form of a reciprocal logarithm, Ph. 3 is much greater than Ph. 6. To an infant accustomed to cow's milk, more acid is gradually secreted to account for the larger buffer substance of cow's milk. (As devised by Sorensen, Ph. is a symbol which signifies the logarithm of the reciprocal of the hydrogen-ion concentration).[5] The larger buffer substance continued for a long time will leave little acid which is necessary to form insoluble tribasic calcium phosphate, thus this important substance is elminated, leaving the

sodium ion in greater excess than the needs of the body. We see, therefore, that gastric acidity at the height of digestion is controlled largely by the choice of a buffer."[3]

Digestion of lactic acid milk and breast milk at the end of two hours have nearly the same Ph. 4, while for sweet cow's milk the Ph. 5.3, these are averages.[4] This has brought about a general use of acid milk among pediatricians. Milk can be buffered by culturing with an aciduric bacteria and by adding acids. In Richmond, Virginia, the streptococcus lacticus is used after pasteurizing the milk, culturing twelve hours to produce lactic acid.

minutes, and allowed to cool before adding the acid. Hot milk will curdle if acid is added.

Milk thus treated can be used anywhere in the country with greater safety than sweet milk. Typhoid and colon bacilli do not grow in this milk. As any acid is better than no acid the amount of acid can be reduced in certain cases. During the summer of 1924, we used at the Dooley Hospital in Richmond, 40 minims to one pint. The cultured acid milk is more convenient when available in cities, but not as safe as the boiled and acidulated milk.

I have had no cases of diarrhoea in private practice during the summer of 1924 that were

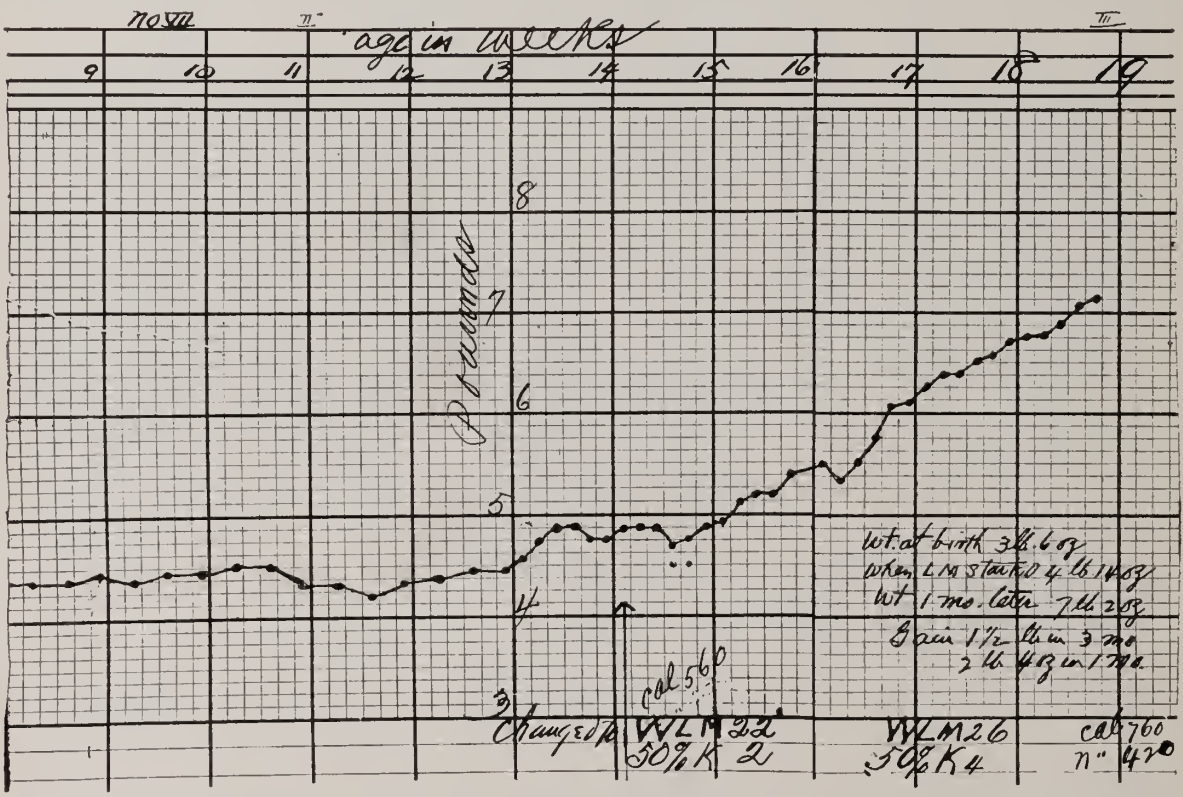


CHART No. VII.

Premature, born with gonorrhoeal ophthalmia. Weight at birth, 3 lbs. 6 oz. Fed on sweet milk and water for more than three months. When 14 weeks old changed to whole lactic acid milk. This infant gained more in one month on the lactic milk than in three months on sweet diluted milk.

Larger culturing will produce more acid. Faber has used hydrochloric acid in the milk. Hess, of New York, has used orange, lemon and tomato in the milk and finds the buffer action of these acids quite satisfactory. As devised by Marriott,[5] the U. S. P. lactic acid is most satisfactory. This product is seventy-five to eighty-five per cent lactic acid. One teaspoonful or drachm is used to one pint. The milk should be previously boiled three to five

on acid milk, and these cases were in Richmond and within a radius of 200 miles of Richmond.

As the treatment of a large number of the cases of diarrhoea is lactic acid milk, it is quite plain that while taking lactic acid milk as a food, diarrhoea is very improbable.

Bacillary dysentery of the Flexner type is not cured by lactic acid milk, but the lactic acid milk is better than any other form of milk.

The treatment of rickets by many pediatricians is acid milk. Bone formation is more

rapid. The most remarkable change is the much firmer muscle and firmer tissue.

The rate of growth is like that of well-nourished breast fed baby.

The bowels are easily regulated and no purgatives are used. Karo syrup, blue label, is used as the sugar. The caloric value of Karo syrup is 120 calories per ounce; the analysis is dextrin fifty-five per cent, maltose thirty per cent, glucose fifteen per cent. This is the least fermentable of the sugars, and thus can be used in larger quantities than cane sugar. We usually use a total of ten per cent to twelve per cent sugar. The bowel movements are easily regulated by an increase or reduction of the Karo.

Lactic acid milk is of especial value in premature, delicate and ill infants. It can be used where sweet milk or breast milk is not satisfactory.

The accompanying charts show children gaining in weight when fed on lactic acid milk.

Skimmed milk will produce tetany while lactic acid milk will cure tetany. There is enough calcium in food but the lack of acid prevents the utilization of the calcium.

REFERENCES

1. Finkelstein. Archives Pediatrics. 4, 225. April, 1924.
2. Finkelstein. Archives Pediatrics. 4, 228. April, 1924.
3. Grinnan. Spasmophilia in Infants. Va. Med. Mo. Vol. 51, p. 423. Oct., 1924.
4. Marriott. Amer. Jour. Dis. Children. Vol. 26 No. 9, p. 543. Dec., 1923.
5. Marriott. Amer. Jour. Dis. Children. Vol. 26 No. 9, p. 545. Dec., 1923.

925 *West Grace Street.*

REPORT ON THE INTRAVENOUS USE OF ARSENIC (ARSPHENAMIN) IN CERTAIN SEPTIC CONDITIONS.*

By JAMES H. SMITH, M. D., Richmond, Virginia.

The cases to be reported have been grouped as "septic conditions." It is possible some better term could be found to describe them. If it will tend to avoid any unwarranted inference, I would prefer to call them prolonged fevers. Of the six cases there was some probability that in three a spirochetal infection was at work. There is no great interest in this day and time in that such cases yielded to arsphenamin therapy, or in the fact that one of them, believed to be complicated by a streptoccic infection, failed to respond. Nevertheless, I believe these three cases do present certain features of interest: and as for the other three I cannot see any good reason to think spirochetal infection played any part in the etiology.

CASE I. White female, aged 38. Dr. J. B. Dalton was this patient's physician. When she summoned him at the onset of this illness about the middle of February, 1922, at his request I saw her in his stead. The patient had just had a chill, the temperature was high, and the leucocyte count was more than 20,000, with an increase of polynuclear cells. Thereafter Dr. Dalton attended the case and I saw her with him, from time to time.

On February 21, 1922, she was entered at a hospital where she remained until April 13th, 52 days. (Chart of Case I.) During that time the temperature ranged from 97 to 106 degrees, at first with daily variations, later showing a tendency to rise only every other day. The sharp rises in temperature were usually preceded either by a chill or definite chilly sensations, and there was frequent vomiting. No localization of any infection could be determined. Dr. Dalton persisted in patient diagnostic studies and therapeutic efforts, rather leaning to a diagnosis of malaria.

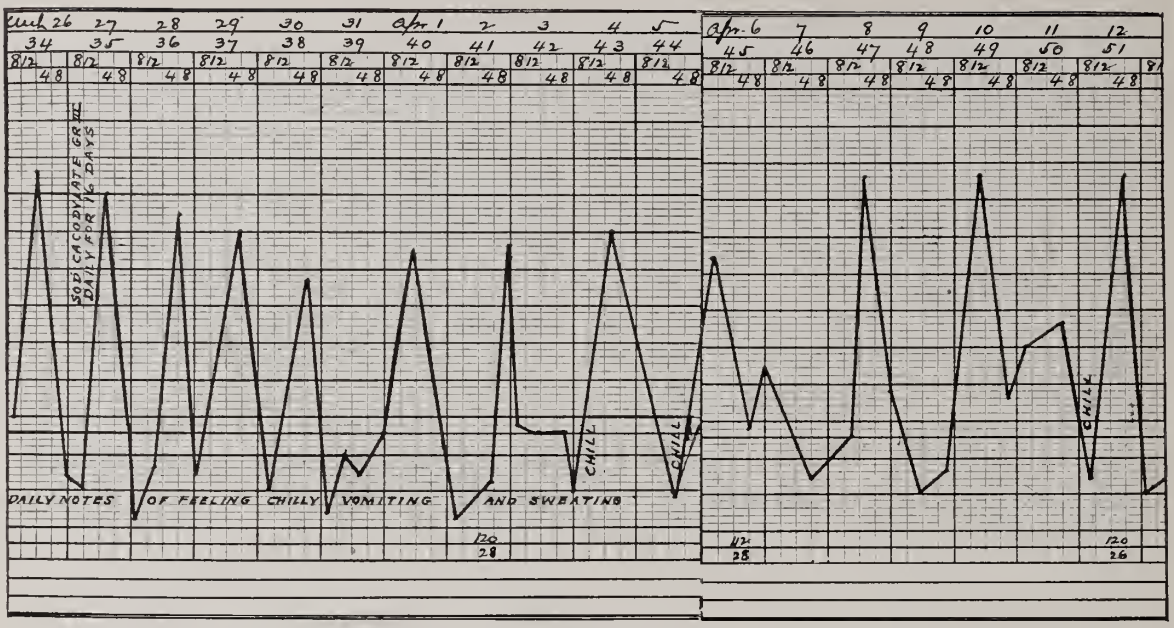
Therapeutic measures included bichlorid of mercury intravenously, vaccines, quinine, mercury rubs, sodium cacodylate, and quinine again.

On April 13th, for financial reasons, the patient was transferred to another hospital. For two or three weeks she continued to run the same type of temperature as shown in the chart. Dr. Dalton then administered 0.5 grams of neo-salvarsan, followed by a prompt decline from the steeple-type of temperature to a range of not over one or two degrees daily. A second dose of 0.5 grams of neo-salvarsan was given a week later, after which the temperature did not rise above normal during her stay in the hospital. She was discharged May 27th, approximately the 103rd day of her illness.

Four or five weeks after leaving the hospital, on her return from a visit to South Carolina, there was another sharp rise of temperature. Dr. Dalton promptly administered a third dose of neo-salvarsan, after which there was no further recurrence.

The polynuclear leucocytosis, the failure of repeated efforts to find the plasmodium and the ineffectiveness of quinine would, I think, point

*Read before the Medical Society of Virginia at its fifty-fifth annual meeting, held in Staunton, October 14-17, 1924.



Section of Chart of Case I.

to some infection other than malaria. There was no clinical or biological evidence of syphilis. One might think of a spirillum infection due to the bite of a louse, tick or bedbug, but the fever was not of the remittent or relapsing type characteristic of such infections. The true nature of the cause remained in doubt.

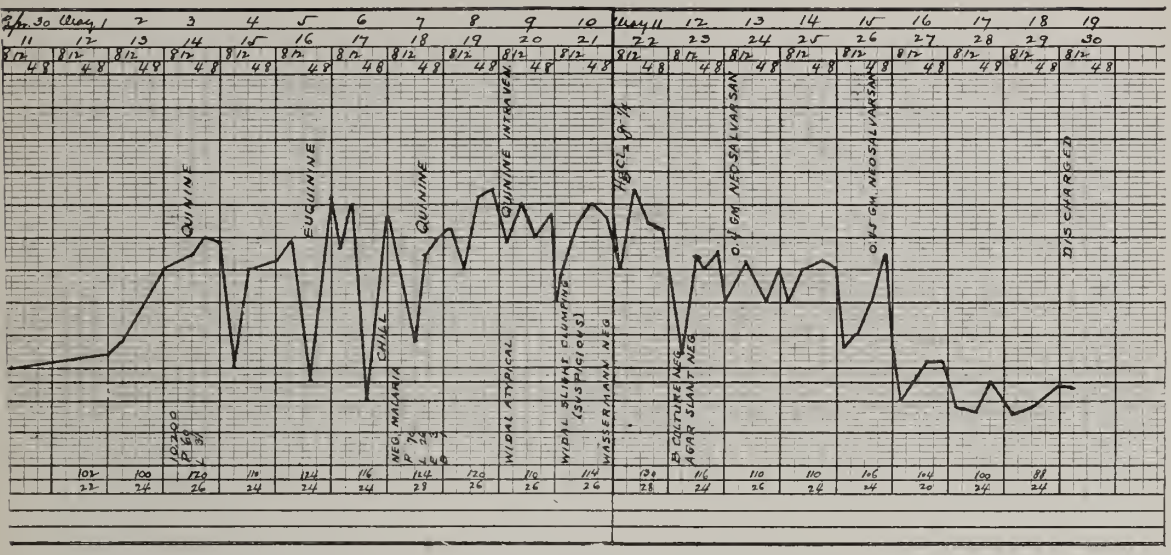
Case II. White female, age 37, seen with Dr. C. H. Lewis and Dr. A. L. Herring, May 12, 1923. On April 20th a Cesarean section had been done for contracted pelvis. The temperature range is shown in the chart of Case II.

Quinine was given by mouth and intravenously, and bichlorid of mercury intravenously, without apparent benefit.

May 13th, 0.4 grams neo-salvarsan was given, and two days later, the temperature having shown no marked effect of the first dose, a second dose of 0.45 grams was given. On the following day the maximum temperature was 99.2 degrees and no rise occurred thereafter.

Diagnostic Data Case I.

	Leucocytes	Polys.	Lymphs.	L. Monos.	Malaria.	Was'rm'nn	Blood Culture.
1st Examination	20,000	Increased					
February 21	20,000	87	13				
February 22					Negative.		
February 24						Negative.	Neg. 48 hr.
February 27	9,800	88	10	2			
March 10	12,000	92	8		Negative.		
March 12							Neg. 48 hr.
March 23	8,400	81	17	2			
April 28	47,800	91	8	1 Basophile			
April 30	19,200	84					
May 17	7,800	70					



Section of Chart of Case II.

There was little of a clinical nature to suggest typhoid fever despite the suspicious Widal reaction. On the other hand, no localized infection could be determined in the pelvis, the operative wound or elsewhere. The diagnosis was in doubt; the therapy was eminently satisfactory.

Case III. White female, age 44, was reported to have had a positive Wassermann reaction eight or ten years previously, for which she had arsphenamin, mercury and iodides. In January, 1924, her physician stated she had been "running an irregular septic type of fever" for about six months. She had had chills, vomiting and drenching sweats. There was an inflammatory condition of the pelvic adnexa which had been removed surgically, though it was feared at the time that a heart murmur which had developed early in the illness might indicate a septic endocarditis. A faintly positive Wassermann reaction in the Fall of 1923 was followed by a negative test prior to operation in January, 1924. In January and February the leucocyte count was normal. "Bright red spots" would appear on the flexor surfaces of the forearms following a chill. The temperature rarely went over 101 degrees, occasionally to 102 degrees. Sodium cacodylate was said to be poorly tolerated, being followed by a reaction of nausea, vomiting and increased temperature.

When seen in June, 1924, conditions had changed very little, the same type of temperature persisting. Arsphenamin was advised and it might seem that the luetic history furnished some indication for it, as well, possibly, as the belief that we were dealing with a bacterial endocarditis, though the prognosis was poor enough. Two doses of neo-salvarsan were given, to both of which the patient reacted

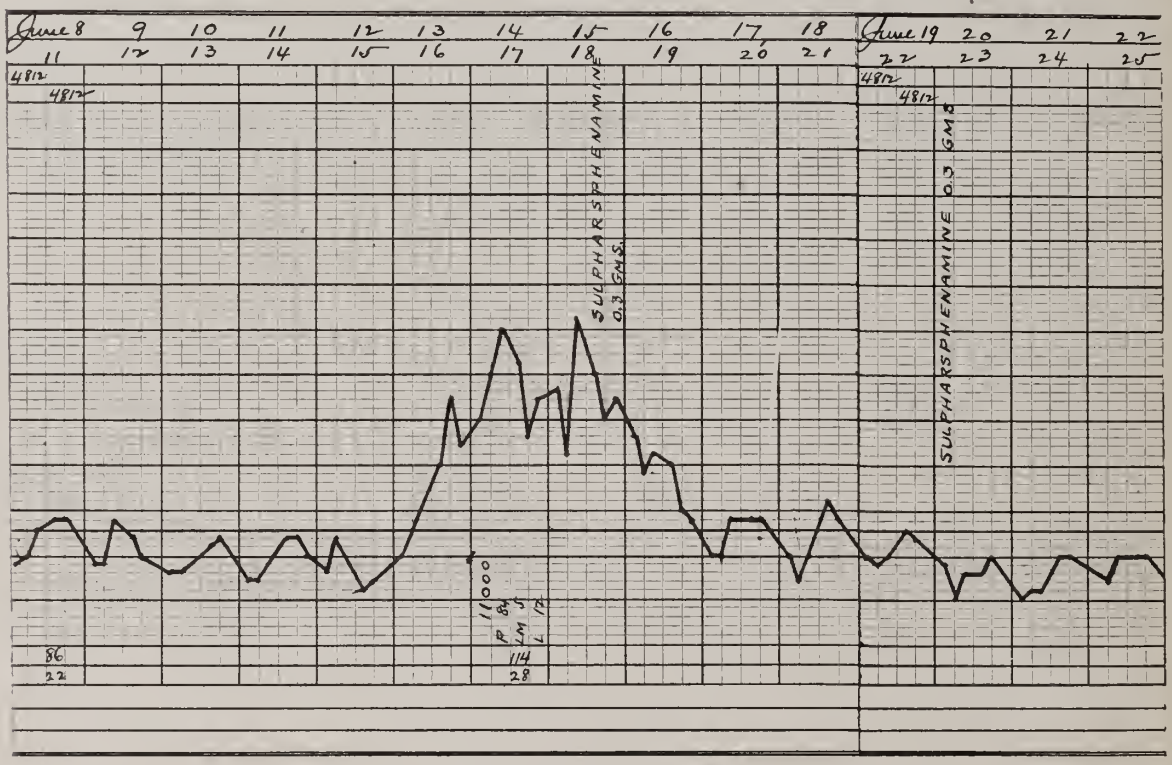
Diagnostic Data Case II.

	Leucocytes	Polys.	Lymphs.	Malaria.	Wasser-mann.	Blood Culture.	Widal.
April 20	10,800	72	26-2LM				
May 3	10,200	69	31				
May 7		70	26-3 Eos. 1 Bas.	Negative.			
May 9							Atypical
May 10					Negative.		Suspicious
May 12						Negative.	

badly. Death followed about two months later.

Case IV. White female, aged 40, was admitted to the hospital April 30, 1924, for pyelitis. The course of the illness was not unusual and the temperature remained practically normal after the first week (Chart of Case IV). The highest leucocyte count was 12,400, with 72 per cent polynuclears. Treatment was conservative and she was discharged on May 19th.

Case V. White male, aged 58, was known to be febrile on and after July 9, 1924, and the fever was believed to have begun some weeks earlier. The chart of Case V shows the type of fever. The case presents some points similar to Case III. When he came to Richmond, August 27th, there was a systolic murmur loudest at the base, the liver was palpable one inch below the costal border, dry cough

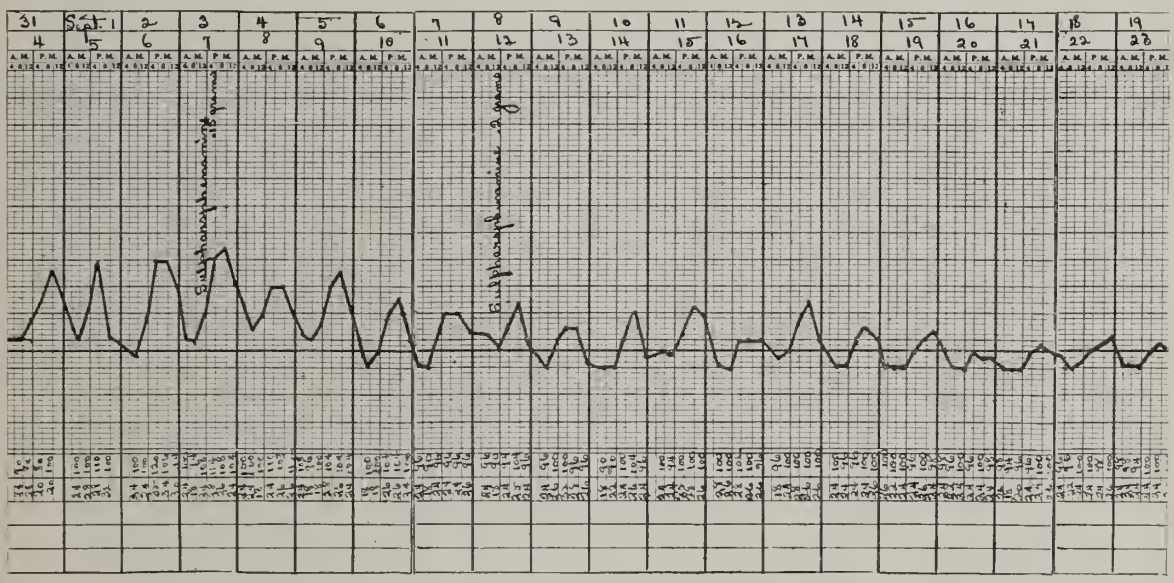


Section of Chart of Case IV.

On May 28th, the patient re-entered the hospital on the service of Dr. Stuart Michaux and Dr. Joseph F. Geisinger. The temperature ranged from normal to 102 degrees. The leucocytes were normal. Cultures of B. coli were obtained from both ureters on June 3rd. Cystoscopy and ureteral dilatation were done, but the temperature up to 102 and 103 degrees for periods of three or four days tended to recur. On June 15th, 0.3 grams sulpharsphenamin was given, and the temperature became normal on the 17th and remained so thereafter. The dose was repeated June 20th. There has been no recurrence of fever or other symptoms, though B. coli were still present in the urine at the last examination in September.

and dyspnea were troublesome, a circumscribed patch of small moist rales or a friction rub could be heard above the right diaphragm. This persisted for several weeks. The leucocyte count was normal, except for a relative lymphocytosis. I thought he had an abscess above or below the diaphragm on the right side. Dr. Hodges' X-ray findings, however, showed inflammation below the left diaphragm. The aorta appeared only slightly widened. Dr. Harrison reported several teeth as showing structural changes about their root ends on X-ray examination but concluded he did not think the patient's mouth had any direct bearing on his condition. The patient had used

alcohol liberally over many years. There was no history of syphilis, but the Wassermann test was reported four plus. A second was done and was reported negative. A third in the same laboratory was reported "anti-complementary," and part of the same specimen submitted to another laboratory was reported two plus. Blood culture was negative. The general clinical condition did not particularly suggest a septic infection. At this point, though confusion reigned in the field of serum diagnosis, there was some comfort in feeling there was a chance to help him with arsphenamin whether the fever was syphilitic or of pyogenic origin. The heart gave rise to more



Section of Chart of Case V.

hesitation in prognosis than did the liver. On September 3rd, he was given 0.15 grams sulpharsphenamin, with subsequent doses of 0.2 grams on the 8th and 0.5 grams on four later dates. The effect on the temperature is seen in the Chart of Case V. The slight rise of temperature from September 21st to 25th was coincident with an abscessed tooth which was incised and discharged pus freely. There was no fever after the 25th. On September 20th, after the second injection of sulpharsphenamin, laboratory number one reported a strongly positive Wassermann by the Kolmer method and laboratory number two a two plus reaction as before. The latest test was reported moderately positive by the Kolmer method. A larger initial dose would probably have been better, but we were cautious of a liver already damaged.

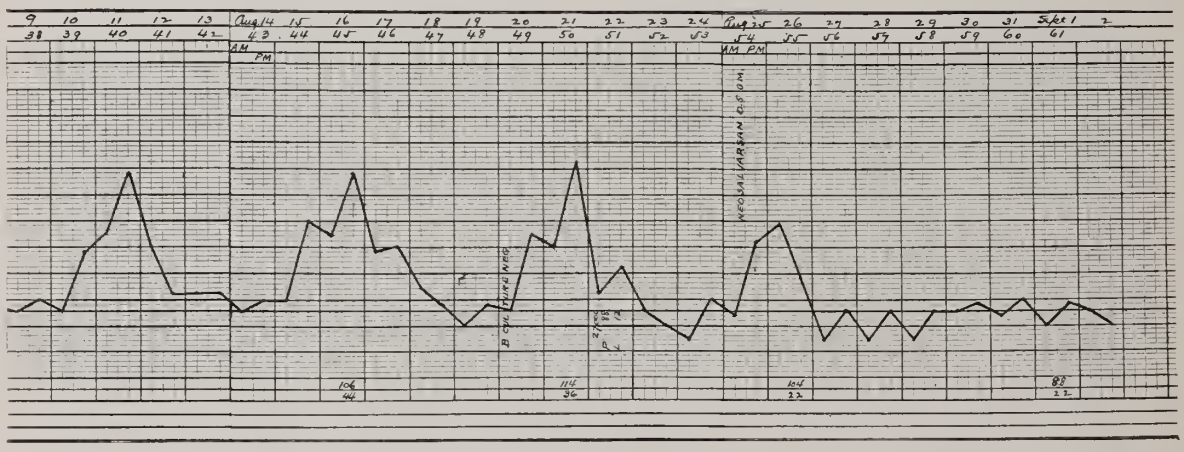
Prolonged syphilitic fevers are by no means unknown. Favre and Contamin, of France,[1] report the case of a man who presented an extremely high and irregular fever of six months' duration, which they concluded to be due to syphilis. The abstract in English of their report is not completely convincing. There is no reference to the Wassermann reaction and, though the man had been in Africa twelve years, no mention of attempts to exclude other forms of spirochetal infection. In part the abstract reads: "It was thought to be tubercular, but manifestations of painful and generalized multiple periostitis, enlargement of the liver and spleen and an old genital lesion suggested syphilis. The fever and bone pain disappeared rapidly after specific treatment." Osler and Churchman[2] say, "The profession scarcely realizes that protracted fever of almost any type may occur in tertiary syphilis. It is probable that many of the cases of obscure, unclassifiable fevers which are described from time to time are due to latent syphilitic lesions. A man may have quite extensive gummatous disease of the liver without pain or without great enlargement."

In the above Case (V) I am inclined to regard syphilis as the cause of the fever. As

1. Lyon medicale, 1923, 4, 303.
2. Modern Medicine: 2nd Ed. Vol. II., page 159.

much as I should like to convince myself that arsphenamin can control pyogenic infection, we have here an instance of slight recurrence of fever apparently due to the development of a dental abscess during the course of arsphenamin treatment. Some years ago I treated a febrile case diagnosed syphilitic aortitis having a strongly positive Wassermann reaction, the fever promptly subsiding under the administration of neo-salvarsan.

Case VI. White female, aged 50. About June 3, 1924, the left index finger was bitten by a pet cat. The animal showed no sign of any disease. The wound seemed to heal but, after a week or ten days, a dark spot appeared



Section of Chart of Case VI.

at the site of the bite. Infection spread in a circular direction and extended to the hand. Redness and mottling of the forearm appeared. The axillary lymphatics of the corresponding side became enlarged and painful. Fever developed June 28th. The finger was amputated July 2nd. Pathological examination revealed only infection and ulcer formation. Blood culture was negative July 5th, as was the Wassermann test. On July 9th, blood culture yielded staphylococcus albus. The operative wound healed kindly, but some erythematous involvement persisted in the forearm. The peculiar remittent temperature range, about three days off and three days on, persisted for 54 days with nausea, vomiting and sweating during the febrile periods. (Chart of Case VI.) On August 20th blood culture was negative. The leucocyte counts were within normal limits on July 2nd and July 5th. August 22nd the total count was 27,000 with 88 per cent polynuclears and 12 per cent lymphocytes. August 25th, 0.5 grams neo-salvarsan was given and a second dose advised. The complete remission of temperature and other symptoms after Agust 26th led to the omission of the second dose, and she was discharged September 3rd.

On September 9th, the patient called Dr. J. D. Boisseau, stating that on the 6th she had begun to feel chilly and the hand became sore and inflamed in the region of the operative wound. The erythematous involvement in the forearm also had recurred. Temperature was 102 degrees and there was nausea and vomiting. Leucocyte count 22,700; 82 per cent polynuclears, 18 per cent lymphocytes. Moist dressings were applied to the hand and arm, and 0.5 grams neo-salvarsan given on September 10th. The temperature was normal within 36 hours and did not rise again. Dr. Boisseau gave three subsequent doses of neo-salvarsan. The local inflammatory symptoms subsided with the temperature, though a discoloration persisted at the site of the erythematous lesions on the forearm. Notwithstanding the report of a staphylococcus growth from blood culture, this case, I now believe, was one of so-called rat-bite fever, in which arsphenamin is a recognized specific. I quote from a recent issue of Progressive Medicine: "Rat-Bite Fever: O'Leary[3] discusses the dermatological aspect of this unusual condition, and reports two cases seen at the Mayo Clinic.

"Rat-bite fever in general is identified by the history of a bite of a rat, cat or dog, with

3. Archives of Dermatology and Syphilology, 1924, 9, 293.

a primary incubation period of from ten to thirty days before the appearance of local reaction at the site of the bite, by constitutional prodromes and symptoms of general infection with a two to seven day intermittent fever, by the fairly characteristic erythematous indurated plaques in the skin, which undergo exacerbation with each rise of temperature and subside between times: by the prolonged course (six months) in untreated cases, by the prompt response to the intravenous administration of arsphenamine or neoarsphenamine and by the finding of *spirocheta mosus-muris*. The last mentioned criterion is not essential to a diagnosis, as observers outside of Japan have been unsuccessful in isolating the organism.

"The differential diagnosis of the local reaction may include pyogenic cellulitis, giant chancre and erysipelas, and, on the basis of the constitutional symptoms, malaria, relapsing fever and trench fever.

"The treatment consists of intravenous injections of one of the arsphenamines given in doses proportional to body weight. It may be necessary to give four or five injections of the drug at five-day intervals, and also to give one or two injectons after the temperature has entirely subsided to prevent relapse."

Boggs[4] in Osler's System gives additional data to the effect that the bite wound usually heals spontaneouly in a few days. Coincident with the onset of the paroxysm, the bite wound becomes swollen, bluish red in color, and usually shows suppuration and necrosis later on. After sloughing, a circumscribed ulcer is left which heals rapidly. The blood shows a moderate leucocytosis. Hata has reported eight cases treated with salvarsan with good results.

Discussion.

I know that I have proved nothing, but I hope that I have suggested something. I believe that the arsphenamin had a definitely curative effect in the five successful cases. The relief following further treatment when recurrences developed in Cases I and VI helps to confirm the belief. The question is, did we luckily stumble on successful therapy in Cases I, II and IV because, unknowingly, we were treating some form of spirochetal infection as happened in Case VI; or were we dealing with pyogenic infections as we were inclined to believe at the time? I have made no extensive search of the literature of the subject, but to make the matter at all clear, more intensive, or at least more successful, more bacteriological studies will be required than were made in the cases I have reported.

In May, 1922, Joseph A. Capps read a paper before the Association of American Physicians on the arsenical treatment of chronic infectious endocarditis.[5] He reported eight cases treated with sodium cacodylate, with only two deaths and six survivals. Of the six, four had remained in good health for two years and more, and were therefore classed as recoveries. The other two were showing improvement. Capps quotes Allison[6] to the effect that "Salvarsan, diarsenol and arsenobenzol possess a distinct bactericidal power against virulent strains of streptococci in vitro in dilutions up to 1:3000, and an inhibiting power for at least twenty-four hours in weaker solutions. They possess bactericidal action against streptococci also in the blood stream of experimental animals. They possess hopeful possibilities for the treatment of streptococcus infections in human subjects as shown by limited human experience."

Capps continues: "Our own experience with the arsenic treatment inclines us to believe that the drug in the ordinary dosage is 'inhibiting' rather than bactericidal, and that it should, therefore, be given over a long period in order to bring about the death of the organisms," and he concludes:

"We have employed cacodylate of soda because of its apparent safety but other forms of arsenic may prove superior."

I do not know of any report so favorable as that of Capps in the treatment of chronic infectious endocarditis with arsenic or by any other means. This condition presents difficulty inherent in the localization of the infection on a heart valve constantly flapping in the blood stream, strategically an ideal position for the streptococcus to occupy. At any rate experimental evidence of a bactericidal or inhibiting effect of arsenic on the streptococcus is encouraging.

Young and Hill[7] report brilliant results in

4. Modern Medicine, 2nd Ed. Vol. I, p. 1030.

5. Capps, J. A. The Arsenical Treatment of Chronic Infectious Endocaritis; Am. Jour. Med. Sci. CLXV. No. I, Jan., 1923, p. 40.

6. Allison; Jour. Med. Res., 1918, 38, 1, 56.

7. Young, Hugh H. and Hill, Justina H.: Treatment of Septicemia and Local Infections by Mercurochrome—220 Soluble and By Gentian Violet: Jour. Am. Med. Asso. 82, 9, Mch. 1, 1924, 669.

the treatment of septicemia and local infections with mercurochrome in seven cases and equally good results with gentian violet in five cases. From data at hand they regard mercurochrome as especially efficacious against B. coli and gentian violet against the staphylococcus.

Certain cases of streptococcus septicemia failed to respond to gentian violet and others failed to respond to mercurochrome. On the other hand reports of some cures of streptococcus septicemia with mercurochrome had reached the authors. It would seem that to establish a usefulness for these two preparations, it remains only to come to a good understanding of their indications, dosage and possible contra-indications. I would also like to see more data collected on the use of arsphenamin in these infections. At present, my attitude toward it is that I shall be inclined to try it in any infection that presents no clear indication for any other treatment and which at the same time seems to demand something more than the supportive and symptomatic treatment we are accustomed to apply. As examples other than the cases reported come to mind intractable cases of erysipelas or rheumatic fever unimproved by large doses of salicylates. It would not seem wise to give arsphenamin indiscriminately in fevers. Especially should nephritis and degenerative processes of the liver lead to caution.

In reporting the above cases at this time the object is to elicit information as to the experience of others, and to suggest further experimental trial in selected cases.

Summary.

Six cases of prolonged fever treated with arsphenamin are reported.

One, diagnosticated chronic bacterial endocarditis and syphilis, was not benefited. The other five seemed to respond to treatment.

Of the five successfully treated one was believed to be syphilitic hepatitis and aortitis, with dental infection; one rat-bite fever; one pyelitis due to B. coli; and the other two of unknown etiology, with the evidence appearing to favor pyogenic infection.

A REVIEW OF OPERATIONS ON THE THYROID AT ST. ELIZABETH'S HOSPITAL, RICHMOND, VIRGINIA, FOR YEAR ENDING OCTOBER 10, 1924.*

By J. SHELTON HORSLEY, M. D., Richmond, Va.

Surgery of the thyroid gland involves many different conditions. The removal of a simple adenoma of the thyroid, which does not produce any constitutional symptoms, is a comparatively easy matter, and concerns merely the technical details of the operation. On the other hand, operations upon exophthalmic goiter require not only a different type of surgical technic from that used in excising a simple adenoma, but also demand the utmost consideration of the constitutional effect of the diseased thyroid gland.

A valuable aid in determining whether the goiter has any constitutional effect, and if so its extent, is the calculation of the rate of basal metabolism. In many cases this gives helpful information, but it should be regarded only as one of the clinical signs, like the degree of temperature in a fever, and must be considered along with the other signs and symptoms of the case.

Calculation of the basal metabolism seems to be even more valuable in hypothyroidism than in hyperthyroidism. Of course the advanced hypothyroid with the classical symptoms of a cretin or myxedema is easily recognized, but the mild cases are often very confusing.

Dr. W. H. Higgins has studied a group of these mild hypothyroid cases which he calls "larval myxedema," and he is reporting his very interesting observations to the medical section of this Society. Patients that heretofore have been considered neurotic, with ill-defined symptoms, headaches, and many of the so-called neurotic symptoms, have sometimes been found by him to be mild hypothyroid cases, and treatment along this line has as a rule shown rapid and marked improvement. It is important to recognize hypothyroid cases, for with rare exceptions they should not be operated upon, but should be treated medically. There are instances, of course, in which the pressure of an adenoma may cause deficient secretion, and here the adenoma should be removed, but none of the normal thyroid gland should be sacrificed.

Until last October, 1923, my personal experience with operations for hyperthyroidism

*Read before the fifty-fifth annual meeting of the Medical Society of Virginia, at Staunton, October 14-17, 1924.

had been a rather unhappy one. Cases of colloid goiter or simple adenoma gave no particular trouble, but it seemed difficult to tell just when the so-called cycles of hyperthyroidism began and ended, and too frequently after a beautiful operation the patient died from acute hyperthyroidism. Ascertaining the basal metabolism rate aided considerably, but the basal metabolism itself is only one of the features to be considered, though to be sure it is a rather important one. Until a year ago my state of mind was anything but clear in regard to the best treatment for hyperthyroid cases, and I had gradually drifted into an ultraconservative view. During the latter part of 1922 and the first part of 1923 I did no radical operation upon hyperthyroid cases. When any operation at all was done it was simply a ligation. The patients were then submitted to radiologic treatment by Dr. Fred Hodges, who has been very successful with certain of these cases. Many of them were greatly improved under this treatment, but a few were not. I had seen the work at the Mayo Clinic, and knew their classification of cases. With the great skill of their specialists in internal medicine they were able to select patients suitable for operation, and the others died a so-called medical death. Within the last two years, however, they have developed the use of Lugol's solution which makes many cases that were formerly classed inoperable at the Mayo Clinic a reasonably safe risk for surgery, so that their medical deaths now have been reduced to a minimum. Lugol's solution is used in cases of the exophthalmic type but not in toxic adenoma. According to Plummer, digitalis should never be given in hyperthyroid cases.

In the clinic of Crile, however, where operation was practically not refused any case, the mortality rate was exceedingly low. Early in October, 1923, I visited Crile's Clinic, and was greatly impressed by the manner in which he handles his hyperthyroid cases. His present method is the result of the building up of many different features through a period of many years. In the desperately sick cases he ligates first one superior thyroid artery and a few days later the other, doing the operations in the patient's bed, and then he permits the patient to go home for a few months. The patient returns whether there is improvement or not, and most of the thyroid gland is removed. If the condition will permit, both lobes are partially resected at the same operation. The patient is carefully watched during the operation, which is done under light nitrous oxide-oxygen anesthesia with infiltration of novocain solution, and if the pulse rises suddenly or the patient's condition appears bad the operation is stopped at any stage and the wound packed with gauze soaked in acriflavine solution. The operation is concluded within the next few days, preferably on the following day. An abundance of water is given by mouth, rectum, and subcutaneously if necessary. If there is a post-operative rise of temperature from hyperthyroidism, icebags are placed about the patient, the number of icebags being determined by the degree of temperature. If the temperature is 101°, four icebags are used; if 102°, eight to twelve icebags, and if as high as 104° a complete ice pack is employed.

With this technic Crile has not lost a patient from post-operative acute hyperthyroidism for several years, although a large percentage of his work consists of operations for hyperthyroidism. It is impossible not to be impressed with his results and with the enthusiasm and teamwork of his clinic. Many of these details of treatment have been enforced under his hands for years, but new things have been added and old ones to some extent rearranged until his management of these cases now seems almost to approach perfection.

It is probably a mistake to follow too blindly the methods of any one clinic unless the local conditions are similar. However, I was so enthusiastic over the results of the treatment of hyperthyroidism in Crile's Clinic that after returning home I adopted most of his methods. We added the use of Lugol's solution in many cases, which seems often to be a distinct aid. During the year ending October 10, 1924, I have done thirty-five operations upon the thyroid gland. These were performed upon twenty-one patients. Ten of the cases were either simple adenomas or colloid goiters. In nine of these only one operation was done on each patient. In one case two operations were done as there was an accessory thyroid just above the larynx which was removed subsequently. Twenty-three operations were performed upon eleven hyperthyroid patients. In two of these patients only ligation of the superior thyroid arteries was done, as the improvement seemed to be so great and the size of the thyroid decreased so markedly that sub-

sequent partial thyroidectomy was not indicated. In two patients there were ligations of the superior thyroid with subsequent partial thyroidectomies. In these patients only the right thyroid artery was tied. Seven partial thyroidectomies were done without previous ligation of the superior thyroid arteries by me. In one of these patients the superior thyroid arteries had been ligated by another surgeon a few months previously, and there was apparently but little improvement. A bilateral thyroidectomy was done on this patient, and while she made a good recovery there was a rather marked reaction for a few days, the temperature reaching 103. In three patients the partial thyroidectomies were done in two stages, removing most of the right lobe and packing the wound with acriflavine gauze, and a few days later operating upon the other lobe. Four operations were for removal of packing and closure of the wound, and three for excision of the scar after the patient had recovered from the effect of the operation.

Several of these hyperthyroid patients I had had under observation or whose thyroid arteries I had ligated months previous to the thyroidectomy. One case with marked protrusion of the eyeballs seemed to be a particularly bad risk. She had become pregnant. Within the preceding year I had tied both thyroid arteries and she had had extensive Roengten-ray and radium treatment. There had been some slight improvement, but her condition was still serious. A right partial thyroidectomy was done. The wound was packed with acriflavine gauze and two days later most of the left lobe of the thyroid was removed and the wound closed. She made a satisfactory recovery, though she aborted a few days after the operation. She had previously miscarried whenever she had become pregnant. She is now in excellent condition.

Results

There was no fatality in any of these cases. We have not had a complete follow-up of all of them because it is too soon, but I do not know of any one of these patients who has not been benefited and many of them are practically well. For instance, Miss N., who returned for excision of the scar a few months after thyroidectomy, had gained fifty-four pounds from the time of the first operation to the time when the scar was removed. Her pulse when she entered was sometimes as high as 120; when the scar was removed after the thyroid symptoms had subsided her pulse was from 72 to 80.

The relief to my mind as well as the benefit to the patients has been great. Formerly, I dreaded to see a hyperthyroid patient. I found it difficult to determine from the cycles the proper time for operation, and while much benefit was usually derived from ligation of the thyroid arteries and subsequent Roentgen-ray treatment, some cases were not improved by this treatment, which was always slow. During the past year I have refused to operate upon no thyroid case, and we now regard the advent of a hyperthyroid patient with pleasure instead of with anxiety.

The operative technic of Crile is founded on the principle of gentleness. An almost transverse incision is made about midway between the sternum and the upper margin of the larynx. The flaps are dissected up and down in the midline, exposing as little raw surface as possible, and then the ribbon muscles are split in the midline. The thyroid gland is divided down to the fascia over the trachea. The vessels are caught with sharp-nosed hemostats. The right lobe is dissected from the trachea. The attachments of the right upper lobe to the larynx are clamped and divided along with the superior thyroid artery. The thyroid lobe is then easily delivered into the wound and the vessels on the outer margin are clamped. Most of the thyroid lobe is removed, cutting toward the fingers which are placed over the trachea and in the space created by the dissection of the median part of the thyroid from the trachea. This gives a definite guide and enables the operator to leave a small layer of thyroid tissue without exposing the recurrent laryngeal nerve. One of the very important points in Crile's technic is his method of controlling the vessels. Instead of tying each vessel individually he groups the hemostatic forceps together in bunches of three or more and with rather stout catgut in a round needle he whips over the small layer of thyroid tissue within the grasp of these hemostats. This is done quickly and greatly shortens the time of operation. At first it seems that there would be secondary bleeding. Care is taken not to insert the needle too deeply and to whip it over at least twice. In this way the ligature suture can be tied down snugly without cutting through the soft friable thyroid tissue. If the patient is doing well both lobes are removed

at the same operation. If the pulse becomes much more rapid during the operation it is safer to discontinue the operation and to pack the wound with acriflavine gauze (1 part acriflavine to 10,000 parts sterile distilled water), inserting no sutures in the muscle and possibly only a single suture in the skin flaps, though this is not necessary. Two or three days later the packing is removed under local and gas anesthesia, and the other lobe is partially removed or the wound is sutured.

One disadvantage of this technic is that a rather unsightly scar is sometimes left. In these operations, however, as in the operations for cancer, the first indication is for cure of the disease. Later the patient may return and a plastic operation can be done under local anesthesia which will give a satisfactory scar. This seems better than attempting to make too great efforts for a small scar in tissue that is infiltrated with exudate resulting from the packing of the gauze.

I feel convinced that this treatment of hyperthyroidism or some comparatively slight modification of it is the most satisfactory method that can be adopted. It has given in my hands not only an absence of mortality and a very low morbidity, but has brought to me a peace of mind in regard to thyroid surgery that it was impossible to possess before.

A PRACTICAL METHOD OF BLOOD VESSEL SUTURE.*

By E. L. KENDIG, M. D., Victoria, Va.

The indications for blood vessel sutures are considered rare. Ligation is all that is necessary if collateral circulation will take care of the situation. There are cases, however, when collateral circulation will not be established, and then a blood vessel suture should be considered in order to provide for the maintenance of the blood supply to the part. According to Sloan, experiments have proven that only 33 per cent of the ligated common carotids recover. Lexer declares that gangrene follows ligation of the popliteal artery in 50 per cent of cases, of the femoral artery in 20 per cent, of the femoral artery and vein together in 50 per cent, and the femoral vein in 1 to 2 per cent. These percentages, as given by other authorities, may differ some but not to a great extent.

I shall not attempt to describe all the various methods of blood vessel sutures now used. Among them the Carrel over-and-over stitch with guy ropes held by assistants, the Horsley cobbler's stitch with guy ropes held by the Horsley Suture Staff, and the eversion methods by Dorrance and others are considered the best.

The indications for blood vessel sutures are practically limited to: (1) wounded blood vessels where a suture is indicated rather than a ligature; (2) excision of malignant tumors in the field of large and necessary blood vessels; (3) radical cure of aneurisms when collateral circulation will be insufficient; (4) direct transfusion of blood. And even then in these indicated cases, asepsis, lack of tension on the sutured vessel, an uninjured and well approximated intima, and the prevention of blood coagulation are essential to a successful suture.

Blood vessel sutures when indicated in operation for aneurisms and malignant growths are determined upon after deliberation, and there is always time to make any preparation necessary. Blood vessel suture for direct transfusion need not be considered as there are easier and simpler methods of accomplishing the same results. It is in the repair of the wounded blood vessel that emergency measures are demanded. If the case is one that can be treated with deliberation, the necessary preparations can be made to unite the blood vessel by one of the methods now used. Also, in the meantime, the Matas aluminum band can be used in selected cases to test the necessity of a blood vessel suture. If it is an emergency, there will be no opportunity to make a test of the collateral circulation and there will be no time to make special preparations for the suture.

To successfully unite a vessel, there are at least five requisites: (1) indication for the blood vessel suture; (2) proper condition of wound, such as asepsis, lack of tension, etc.; (3) surgeon with blood vessel suture experience, (4) several assistants; (5) the necessary material. It will not be often that all of these requirements will be together in an emergency at the same time. The chances of occurring will be just about as good as they are to draw what our poker friends call a "Royal Flush." In order to make an emergency blood vessel suture practical, some of these various requisites must be made unnecessary. The only way to do this would be to have a method which would give good functional results, and for its per-

*Read before the fifty-fifth annual meeting of the Medical Society of Virginia, at Staunton, October 14-17, 1924.

formance would require a surgeon less experienced in this particular work, fewer assistants, and the needles, thread, and instruments ordinarily available.

To meet the demands of the emergency cases I have experimented in the laboratory with what I might term a "continuous interrupted suture."

By this method I have successfully sutured under emergency conditions the abdominal aorta, common carotid, and the femoral artery of medium size dogs, a more complete report of which I expect to give later. In the discussion of this suture it is only necessary to

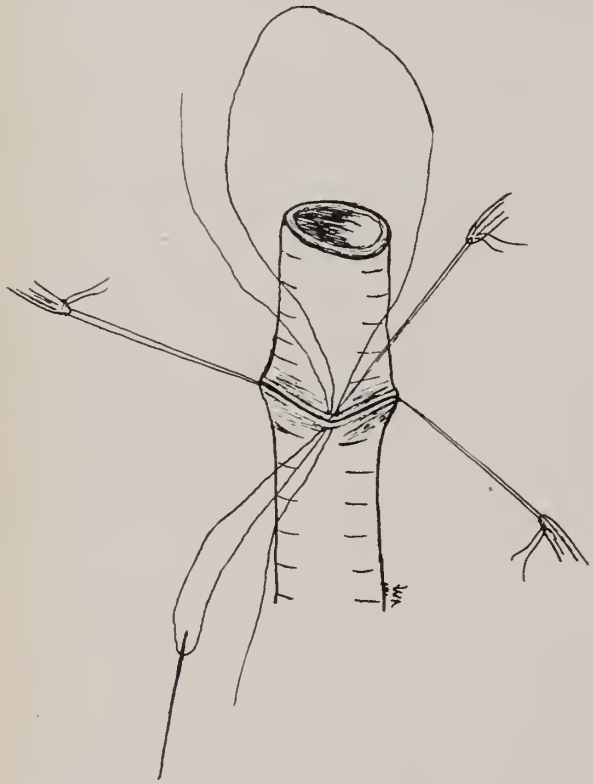


Fig. 1.—The needle carrying single thread for the first suture and the double thread for the second suture has been introduced. This double thread is drawn through, taking up the slack between the two needle holes. The continuous ends of the thread between the first and second sutures are then tied.

describe the introduction of the needle and the tying of the thread. The other details do not differ from the generally accepted methods of blood vessel repair. In the continuous interrupted method it is easier to place the sutures when guy ropes, as suggested by Carrel, held by assistants or by the Horsley Suture Staff, are used, although they can be placed without these holding threads. No. 000 20-day chromic catgut, or any fine silk which will thread into a No. 9 or smaller needle can be used. A round needle, either curved or straight, will work satisfactorily. Boil the needles and silk in vaseline. If catgut is used, it will be necessary only to anoint the needles and thread in sterile vaseline. When using catgut, thread the needle on the whole length of the tube. When silk is used, thread the needle on a piece three or four feet in length.

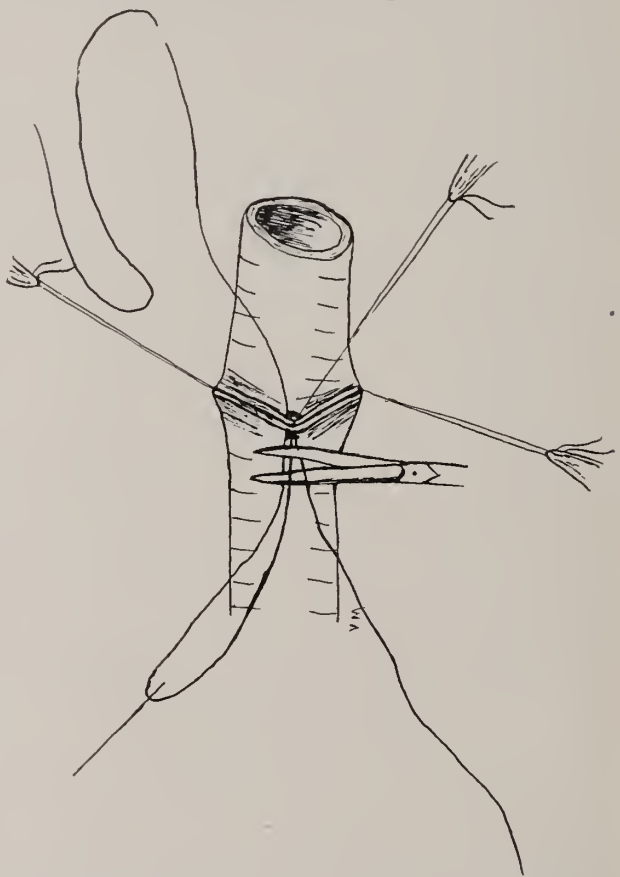


Fig. 2.—The thread between the first and second sutures has been tied and the two ends are ready to be cut off.

For this suture pass the needle through the cut end of the vessel from without inward, taking just bite enough to give it a good hold and in like manner through the opposite end of the vessel from within outward. Draw the thread through about three or four inches and remove the needle. Now thread the needle on the other or long end of the thread. If you have help, the assistant or nurse can be threading another needle on this long end, while the first suture is being introduced. Pass the needle over the long end of thread until within three or four inches of the vessel and then introduce this second suture through the two ends of the vessel as in the first suture,

pulling the needle through with the double thread until the slack between the two sutures is taken up. Tie moderately tight the loose end of the first suture to its continuous thread in the loop of the second suture. After tying, cut off both ends near the knot and remove the needle. This leaves a loose end like the one left in the first suture. Put in the third suture like the second, tie, and continue until the whole circumference has been sutured. The distance between the needle holes should be close enough to avoid puckering of the vessel walls when the sutures are tied. This method brings together under evenly distributed pressure the whole circumference of the two ends of the vessel, approximating the intima without injury and resulting in little or no exposure of the thread in the lumen.

A disadvantage of this method is that it will take a few minutes longer than with the running suture. Also the large needle and thread may require a little deeper bite in the end of the vessel and in that way evert more of the vessel wall, making the lumen possibly a little smaller. Archibald Smith's researches show, however, that sutures bringing the intima together in this way do not tend to stenosis.

The advantages of the method are: (1) each suture being tied after it is put in, the ends of the vessel are held together in good position each time for the next introduction of the needle—this makes it possible to do the suture quite well without the guy ropes; (2) the adjacent thread of the sutures passes through the same needle puncture, which fills up the needle hole, thereby helping prevent hemorrhage, and makes certain that all of the circumference of the two ends of the vessel are in the grasp of the thread, thus binding the two ends together in a very strong union; (3) this double thread through each needle hole and the grasp of the entire circumference of both ends of the vessel by the sutures permits the use of the larger needles and thread. The large needles and thread make the suture more easily performed by the average man, and the larger suture material con be readily found when needed in a case of emergency.

The use of catgut in the suture of blood vessels heretofore has been impracticable because the gut was too large to obtain success by the methods used. Binnie mentions the fact that catgut swells after being placed in tissue and points this out as a good reason for its use in blood vessel suture. In this way it fills up the entire needle hole and hemorrhage is prevented. It is well known that silk remains in the fibrous tissue union of the vessel for a long time, sometimes being separated from the blood stream only by the thin endothelial lining of the vessel. Catgut has the

Fig. 3.—The tied ends of the thread between the first and second sutures have been cut, the needle has been threaded on the other end of the suture material, and introduced with a double thread for the third suture. The continuous thread of the third and second sutures will be tied like the second and first.

advantage of being quickly absorbed. The use of the larger needle and thread in this method makes the use of catgut sutures more practicable.

I would like to say, in conclusion, that my work in this connection does not lead me to believe that this continuous interrupted blood vessel suture will take the place of the present accepted methods when the conditions for their use are favorable, but it does show that this is a practical blood vessel suture and one that will serve a useful purpose in cases demanding emergency blood vessel repair.

REFERENCES.

Bernheim, B. M. Surg. Gynec. and Obst., 1920, XXX, 564, 567.

Bickham, W. S. Operative Surgery, Vol. 2, p. 3.

Binnie, F. B. Manual of Opr. Surg., 7th Ed., p. 812.

Borden, W. C. N. Y. Med. Jour., Aug. 24 and 31, 1912.

Carrel, Alexis. Lyon Med., 1902, V. XCVIII, pt. 1, p. 859.
Goodman, Chas. Annals of Surg., July 1, 1917.
Goodman, Chas. Surg. Gynec. and Obst., Nov., 1918.
Grant, W. W. Surg. Gynec. and Obst., XVIII, 532, 535.
Horsley, J. S. Jour. A. M. A., July 9, 1921.
Horsley, J. S. Surg. Gynec. and Obst., 1914, XVIII, 536, 545.
Horsley, J. S., Operative Surg., p. 69.
Leriche, Rene. La. Press. Med., 1922, Vol. XXX p. 1105.
Lexer, Muenchen. Med. Wchnschr, 1918, LXV, 468.
Matas, R. Internat. Cong. Med. Lond., Sec. 7, Pt. 2, Surg., 1913, 149.
Neff, J. M. Surg. Gynec. and Obst., 1921, 657, 669.
Prat, D. Jour. A. M. A., June 7, 1924, p. 1900.
Sloan, Harry G. Surg. Gynec. and Obst., July, 1921.
Vander Veer, Albert. Surg. Gynec. and Obst., 1912 VX, 255, 261.
Wood, W. Q. Edinburgh Med. Jour., Feb., 1924.

Discussion.

Dr. Stephen H. Watts, *University*: I have been interested in blood vessel suture for a good many years. In 1907 I reported the results of a series of experiments in dogs in which the vessels were sutured by the Carrel method. Of thirteen circular anastomoses of the common carotid artery, all were perfectly successful as shown by autopsies performed from twenty-eight to eighty-two days after operation. The jugular vein was also sutured thirteen times with ten successes. In the three unsuccessful cases there was more or less occlusion of the lumen due to thrombosis at the site of suture.

This work, of course, requires the best of technic but with good technic the results are good. I cannot see that the method described by Dr. Kendig offers any advantage over the Carrel method in clinical work.

Dr. J. Shelton Horsley, *Richmond*: Suturing blood vessels is a procedure that has more experimental than clinical interest. It is, however, valuable from a clinical standpoint because, even though it may not have many clinical applications, acquiring the technic in the experimental work, undoubtedly makes for more delicacy and accuracy in the technic of the surgeon who does the work. I have used finer needles and thread than in the specimen shown by Dr. Kendig, but doubtless in large vessels the necessity for very fine needles may not always exist.

I have had one patient in whom the brachial artery was cut just below the elbow, and he was brought to me about an hour after the injury. Some one had put a tourniquet on to stop the bleeding. I united the severed vessel end-to-end by the technic I had worked out and the flow was immediately established. The patient had good use of his arm except for a slight injury to the median nerve that was done at the same time the artery was cut in two. This has, I believe, recovered also.

It would certainly be ideal for every operator to have the ability to suture blood vessels. While the possibility of emergency for this work is very rare it does exist and should be borne in mind.

Dr. E. L. Kendig, *Victoria*, closing discussion: You will recall that I stated before reading this paper that an accident requiring blood vessel suture suggested these experiments, and the results of this experimental work prompted this paper. I am glad to have Dr. Watts and Dr. Horsley, both authorities on blood vessel surgery, discuss this subject. The results of blood vessel suture under ideal conditions are usually good, but under emergency conditions are not generally successful. As to the comparative merits of this suture and the Carrel method, I will refer to the concluding sentence of my paper in which I said that my work in this connection did not lead me to believe that this continuous interrupted blood vessel suture will take the place of the present accepted methods when the conditions for their use are favorable, but it did show that this is a practical blood vessel suture and one that will serve a useful purpose in cases demanding emergency blood vessel repair.

OBSERVATIONS IN TUBERCULOSIS CLINIC WORK.*

By EDGAR C. HARPER, M. D., Richmond, Va.
Clinician, Bureau of Tuberculosis Education.

This paper is based on my work as medical director of the State Board of Health county field clinics. I shall later give in detail the results of our clinical examinations and you will no doubt be surprised, if you are unfamiliar with our methods, that we found 1,079 persons really needing the attention of physicians for diseases entirely unrelated to tuberculosis, and still more surprised at how few of these sick persons were receiving a physician's care. We make every effort possible, with our financial limitations, to fine-tooth-comb the communities in which we hold clinics with the one outstanding thought in our minds to find those who show symptoms of possible tuberculosis. Consequently, of course, the records of our investigations disclose an unusually large percentage of tuberculosis as compared with the average of such percentages; but we, like you, are surprised that our examinations disclosed so many other diseases.

Methods of Procedure

Preliminary Organization: Since we have not as yet been able to hold annual clinics in all of our counties, I do not think it will be uninteresting to you for me hastily to review our method of procedure. This routine has been followed in each of the twenty-six counties for which we have tabulated the records of our clinics held during the summer just past. The director of the bureau of tuberculosis education, or her assistant, visits the county, makes public talks, interviews prominent citizens, and arranges with local committees for examination points, placing these in each magisterial district, so as to make the clinic accessible to as many people as possible. One week before the clinic, the field nurse arrives in the county, and at once calls on all

*Read at the fifty-fifth annual meeting of the Medical Society of Virginia, in Staunton, October 14-17, 1924.

regular medical practitioners. She carries to the doctors lists of contacts secured by our office records of tuberculosis deaths, cases registered with us by the local physicians, and cases reported to us through our laboratories. She asks permission to visit in these homes and secures if possible through the physicians the names of other contacts for visiting. All families in which there has been a death in the past two years are visited and members of the family urged to attend the clinic. The importance of this work will be shown later by our records of high percentages of positive cases among the contacts examined. Posters advertising the clinic are placed throughout the county in conspicuous places and dodgers are distributed telling of dates and places where clinics will be held. Ministers are asked to co-operate by announcements in churches, and the press and moving picture houses do their part to bring the clinic to the attention of the public.

Method of Examination: To facilitate and accelerate the examinations a carefully prepared history is taken by a historian who is specially instructed before the clinic. We have one permanent historian, but for the second unit the nurse gives preliminary instructions to some local persons who may be relied upon to do the work of historian. The history sheet is brought to the examining room with the patient. On it are listed family and contact history, past illnesses, hemoptysis, usual and present weight, pulse, temperature, and respiration, together with a general account of the onset of present illness.

In the examination itself, the following routine has been established. The patient is stripped to the waist and a thin examining cape thrown over the shoulders. He sits on a revolving stool which has been placed in a good light and faces the examiner. The time honored procedure of inspection, palpation, percussion, and auscultation are begun in the following manner:

Inspection: The patient is instructed to assume a natural position not too rigid nor too slouching. He is closely inspected for all disease signs; such as faulty nutrition of skin and subcutaneous tissue; presence of eruptions; old scars, or abnormal pulsations; size, development, and contours, degree of expansion, muscular spasm and retractions in the chest; rate of respirations, and so on. A great deal can be learned from these simple procedures; for pathology in lung or pleura rarely fails to leave its telltale marks on the thoracic cage. Thus an early lesion at one apex will give you muscular spasm in sterno-cleido-mastoid, the scaleni, pectoralis, and trapezius. These muscles will be found prominent; larger and firmer than muscles on the opposite side. This, combined with lagging at apex or base on affected side, along with unilateral deepening of supra- and infra-clavicular spaces would suggest the location of the lesion. Disturbances of nutrition and sympathetic nervous system, as seen in curving nails, unequal dilation of pupil and flushing of cheek on affected side, are encountered sufficiently often to be of much diagnostic assistance.

Palpation is combined with inspection to confirm muscular spasm, locate apex of heart and discover enlarged glands or areas of tenderness and voice fremitus.

Percussion is relied on to outline pleural effusion and solid organs. Percussion of apex should always be carried from below upward, as we are more apt to detect impaired notes in going from normal to abnormal, than *vice versa*.

Auscultation will continue to be our most reliable, but most difficult method of physical diagnosis in chest work. Often the evidence of an early lesion may be very slight and escape detection. The earliest breath changes are caused by the narrowing or roughening of terminal bronchioles and is termed granular; this, with a prolongation of expiration or a slight enfeeblement on one side, are true breath changes of early apical tuberculosis. Increased whispered voice will usually be heard over an area of infiltration, but is not as reliable as changes in breath sounds.

Rales come later in disease and may be brought out by listening to inspiration following an expiratory cough. It is as true now as it was in Osler's day that "one swallow does not make a summer," but one persistent crepitant rale above the clavicle makes pulmonary tuberculosis; although we may as well admit that if we wait for rales we have in many cases allowed our patient to pass into the moderately advanced stages of the disease and have thereby decreased his chances of recovery. Too much dependence must not be placed on the presence of rales; for out of our 937 positive cases, 527 or fifty-six per cent were without rales. Undue importance has been given to

negative sputum by both profession and laity. Our field methods do not enable us to secure complete records of sputum examinations on clinic patients. Records of Phipps Institute, as tabulated by Fishberg, show that from sixty to seventy-five per cent of early cases show negative sputum even after exhaustive study and repeated tests. What wonder then that a single examination so often shows a negative report, and unjustifiably thus quiets the patient's fears! A positive sputum clinches our diagnosis, but a negative one does not deny tuberculosis. Of 3,293 sputum examinations made at the State Laboratory during two years, only 597 or eighteen per cent were positive, yet all these cases were suspected by competent physicians.

We must bear in mind always that true diagnosis of incipient tuberculosis can be made only by careful consideration of the facts revealed in the history, and proper estimation of slight deviations from normal as brought out by inspection, palpation, percussion, and auscultation. So in our clinical work, we give due consideration to each factor.

Follow-up Methods: Continuing the discussion of our clinical organization, we consider that our problem only begins when a positive diagnosis has been made. The aim of the post-clinic work is to get under medical supervision all patients who need the doctor's care. This work is begun by giving the family doctor a report of the chest findings, the stage of disease, and the associated diseases. The report is made out by the clinician for each patient at the time of the clinic. The nurse carries it to the doctor to seek his advice and secure his permission to visit the patient. No medicinal treatment is ever recommended, but the patient is advised to keep in close touch with the family doctor if he is to take the cure at home or pending admission to the sanatorium. The clinician recommends to each positive or suspicious case that he shall at once adopt the hygienic and dietetic mode of life which is standardized under the name of "the cure." Beyond this our clinicians do not go. I desire to state emphatically that I believe physicians should send every early tuberculous patient to a sanatorium. There is as much need to send early tuberculosis for sanatorium treatment, if we consider the patient's welfare, as there is to send the early case of appendicitis for observation to a surgical hospital. The objects of sanatorium treatment are two-fold: first, to teach the patient to get well and to stay well; second, to teach him to protect others. My observation, extending over several years of sanatorium and private practice, leads me to believe that one month of sanatorium treatment is worth six months of such home treatment as is possible in the average rural home. Tuberculosis is no respecter of persons, but a large percentage of our patients are from the poorer classes, many of them not able to pay the small monthly rate at our sanatoria. If we can secure for these patients, through their own efforts or that of philanthropic persons or charitable agencies, sanatorium treatment, we feel that we have done the best thing possible alike for the patient and the community.

General Observations on Findings

General Analysis: An analysis of our records from the standpoint of sick persons, with and without medical attendance, shows startlingly serious conditions among our people. We have tabulated 3,237 case histories and find that among our applicants 2,017 had a diagnosis of some definite pathological condition. Of these 2,017, only 938 had tuberculous lesions and 1,079, while negative to tuberculosis, were found with other definite diseases. Of our total of 2,017 sick persons, only 410 reported themselves as "under a doctor's care." Allowing for inaccuracies of statement through misunderstanding of our historians' questions, it must yet be conceded that the situation is most alarming.

Percentage of Positive: It is of interest to note that twenty-nine per cent of all our clinic patients are positive cases of tuberculosis. Comparison of this figure with the carefully selected patients of an old well-established tuberculosis clinic in Richmond shows that they found only nineteen per cent more positive cases than we did. Considering the fact that many of our clinics are held in counties where there are no public health nurses or active public health departments, these figures would tend to show the beneficial results of general education and periodic physical examinations as measures to prevent sickness. Of our 2,349 white applicants, thirty-two per cent were positive cases of tuberculosis, while of 902 colored applicants, only twenty per cent showed disease. These are grave figures when we remember that the death rate amongst negroes is practically two and one-half times as great as it is among the whites, and that many of these

people serve as nurses and cooks in the homes of the white. The difference in attendance is partly explained by a difference in the attitude toward the disease. The white people who attended clinics were anxious to discover their true conditions: the negroes wished to have their assurance of well-being justified. The policy of many insurance companies may have influenced these figures for, as you know, they refuse to pay sick benefits and death claims to those sick or dying of tuberculosis.

Although the clinic is primarily for adults, 902 children came for examination, and eighteen per cent showed tuberculous disease. We believe that infection usually takes place in childhood, and that a higher mortality among children would be recorded were it not that the disease progresses so rapidly to a fatal ending for the very young. The scarcity of definite clinical manifestations also renders diagnosis more difficult than it is in adults. All children who are underweight or who fail to gain weight, or who tire easily, with pallor, malnutrition and debility, are potentially tuberculous and should be treated as such unless there is marked improvement after other defects have been removed.

Results in Contact Work: Discarding the influence of heredity on tuberculosis, but believing fully in the communication of the infection from the careless sick to the well, we have spared no effort to get in touch with the contacts and bring them out for examination. Our approach was made possible through lists of all types of patients appearing on our office records which, placed in the hands of our nurses, made with the co-operation of local physicians an excellent basis for thorough contact visiting. Our efforts to secure contacts for examination have been partially rewarded, for our tabulation shows thirty-five per cent contacts among our 3,237 applicants. The large number of contacts among the applicants is in part due to the excellent work of our field nurses, and in part to the long duration of the educational campaign. We believe that annual examinations for all contacts will be an essential factor in the elimination of the disease.

Family History: Every possible form of persuasion short of coercion was used by our nurses in families with positive histories, in order to secure their attendance at clinics. Few people are at all trained in methods of preventing the spread of communicable disease, and we were not surprised to find that fifty-six per cent of our tuberculous patients showed positive family history.

Other Disease Findings

As I have said, 2,017 of our applicants had a definite diagnosis of a pathological condition, and only 410 of all our applicants for examinations were in the hands of doctors. The findings in diseases other than tuberculosis provide much interesting data. For example, we attribute a great deal of the poor health, malnutrition, inability to progress at school, rheumatic, cardiac, and eye and middle ear troubles in children to diseased tonsils and to adenoids, yet our tabulation reveals that 445 of our children are handicapped by this one ailment, thirty-five more than the 410 cases in hands of practitioners. There are exceedingly few organic conditions that are not made more bearable by a sympathetic advice of a respected family doctor, even though his medicinal aid may be of little value. The succeeding diseases found through our examinations all tend to grow progressively worse rather than to become spontaneously relieved. In the list we find:

Tonsils and Adenoids	445	Malnutrition	109
Cardiac	175	Gastric	35
Chronic Appendix	4	Pleurisy	27
Bronchitis	55	Nephritis	9
Hyperthyroid	68	Goitre	25
Cervical Adenitis	35		

If we use our 410 patients under medical supervision as our tuberculous group, we still leave fifty-seven per cent of our tuberculosis patients without medical care, along with the 175 cardiacs, the 445 cases of tonsils and adenoids, and all the other various diseases, which were among our findings. Further, it is a deplorable fact that many of our tuberculous cases are among the clientele of the irregular practitioners who encourage them mentally and who massage their spines industriously as long as their money holds out, and then turn them over to the county in an incurable stage.

Variety in Symptoms of Onset

An examination of our tabulation for modes of onset reported by our patients gives many useful diagnostic hints. No disease, with the possible exception of syphilis, has a wider range of onset or greater variation in symptoms than tuberculosis. Yet, upon definite symptoms and slight physical findings, an early diagnosis can be made, to the credit of the diagnostician and to the great benefit of the patient.

Remember that an unexplained loss of weight, undue fatigue upon slight exertion, with loss of strength and energy, combined with rapid pulse and temperature of 99° F. or over for afternoon or evening, with or without cough or expectoration, mean tuberculosis in about ninety per cent of the cases.

The manner of onset may be indefinite and it is evident that our classification overlaps; but it was to be expected that each patient would show more than one symptom in the onset of disease.

For convenience in discussing our very varied histories of onset, we have grouped them under the following heads: first, insidious; second, catarrhal; third, hemorraghic; and fourth, pleuritic.

Insidious: A prominent group of symptoms in early tuberculosis is caused by the action of circulating toxins on the central nervous system and in the glands of internal secretion. Among these symptoms are lack of endurance, malaise, loss of strength, anorexia, indigestion, rapid pulse, temperature and anemia. These we class together under the head of insidious and find that ninety-five per cent of our group of positive cases show this onset.

Catarrhal: We have been impressed by the large number of cases dating their illness back to the influenza epidemic, or to subsequent attacks of so-called colds or grip. We have classed them, along with colds, pneumonia, cough and expectoration, under the catarrhal onset, and find that forty-five per cent of our positive cases give at one time or another this history.

Hemorraghic: Although a large percentage of patients—245 or twenty-five per cent of our total positive cases—give a history of blood spitting, at some time during their illness, this is not a frequent mode of onset; but it is a symptom of greatest importance. We are, of course, eliminating from our consideration hemorrhages caused by lesions of the mitral valve. The expectoration of a drachm or more of blood in temperate climates is due to tuberculosis, according to Cabot. Unfortunately, many patients progress to a hopelessly advanced stage, lulled by the moral cowardice of their medical adviser, into the comforting assurance that the bleeding is from the nose, throat, or stomach.

Pleuritic: The wide use of the X-ray in chest work during the last few years has made us appreciate the fact that pleurisy, wet or dry, is a precursor of later active trouble. Thirty per cent of our 938 positive cases gave a pleuritic history. Referred pleuritic pain to the shoulder joint is often found in unilateral apical lesions. So frequently has this occurred that we wish to urge a thorough chest examination before such pains are classed as neuritis or rheumatism.

I do not mean to imply that our patients have given a history of onsets which fall exactly within our classifications, but that we have been able to group even varied onsets roughly into these classes. Frequently the onset is so indefinite that we must look into the past history for further light. What effect do one or more attacks of pneumonia, influenza, or pleurisy have upon the lung? It is inconceivable that the delicate pulmonary tissue could harbor the virulent organisms of these diseases without having its resistance to tuberculosis impaired. Many acute, "flare ups" of an old reenactivated pulmonary tuberculosis, in individuals not suspected of having the disease, are diagnosed as pneumonia, influenza, or some allied trouble, without any discredit to the doctor, for the signs and symptoms may be identical. What we wish to call attention to is the bearing upon tuberculosis of recurrent attacks of acute pulmonary disease. We cite figures to substantiate our belief in their importance.

Twenty-eight per cent of our cases with positive tuberculosis give a history of pneumonia, while only sixteen per cent of our negative cases give such history. In pleurisy we expected the percentages to differ more widely, and we find such history in twenty-seven per cent of positive tuberculosis, and in only seven per cent of the negative cases. "Wet" pleurisy is generally believed among tuberculosis specialists always to be of tuberculous origin, but we do not believe this to be true of "dry." After the influenza epidemic it was to be expected that a large percentage of all applicants would give a history of that disease. We find it present in the history of seventy-four per cent of the positive cases of tuberculosis, and in sixty-two per cent of the patients who showed no tuberculous lesion.

The importance of an early diagnosis is seen from a casual glance at the following table:

	Active	Quiescent	Arrested	Total
Minimal	150	69	138	357
Mod. Advanced	121	15	13	149
Far Advanced	52	2	1	55
	323	86	152	561

It is significant that out of 357 early cases, 138 or thirty-nine per cent should have become arrested without treatment; whereas only one case out of fifty-five far advanced, less than two per cent, showed as arrested. Reports from Catawba Sanatorium, October 1, 1921, to September 30, 1923, show following comparisons:

	Improved	Unimproved	Dead (whole fractions)
Minimal	92%	8%	0%
Mod. Advanced	89%	9%	2%
Far Advanced	60%	26%	14%

Chances for minimal cases to improve under treatment are nearly fifty per cent better than for far advanced cases, and are nearly three times as great under treatment for minimal as they are under no treatment.

Conclusions

We feel that our educational work with negroes has not been so successful as with whites. Although the State provides a 120 bed sanatorium at Burkeville—at which equally good results are obtained as in the white sanatoria—we have given practically half our clinic time to colored people, and we find that the ancient superstition of baneful effects of night air, racial susceptibility to tuberculosis, poor living conditions and indifference to health matters render them dangerous foci of infection upon which we are preparing to concentrate an intensive educational campaign. We feel that physicians in their routine practice can be of great aid in educating the negro out of the fear of a positive diagnosis.

We wish to thank the many doctors who have cheerfully given their time and support to the clinics. We have no desire or thought of supplanting the local physician, for he is the backbone of society's efforts to eradicate disease. We function only as a diagnostic adjunct hoping thereby to give timely advice to a very unfortunate class of people. Our aim is to get the patient under supervision of his doctor, to impress upon him the importance of yearly examinations, and to admonish him of the first danger signals of tuberculosis.

Finally, I wish to emphasize the importance to you of history and symptoms in early diagnosis. Remember always that they precede physical findings by days or months, and that physical manifestions may be very slight or entirely absent, although disease is present. Fifty per cent of positive cases do not show rales, and one of the most difficult procedures of physical diagnosis is the detection of pathological variations in breath sounds. These are lessons I have had impressed upon me by study of 3,000 chest examinations.

State Office Building.

Discussion.

Dr. B. B. Bagby, *Richmond*: Twenty-two years ago I spit blood from my lung and went to New Mexico. Since that time I have been thoroughly impressed with the fact that all cases should have some sanatorium treatment to teach them to protect others. How can we get these people to go to the sanatoria? I used to tell them that they should go to be cured themselves, and I had very little success. For the last three years I have been telling them to go to learn not to give the disease to others, and I have had much more success.

Last year I saw an old man whose son and wife had died of tuberculosis. The old man had contracted the disease in 1918. Preachers, doctors, nurses, all had tried without success to persuade him to enter a sanatorium. I found him and his two children sleeping in one bed. He was spitting germs everywhere and doing everything possible to infect everyone. He had been a reprobate, gambler, everything he should not be, and no one cared if he got well or not. I felt this way about him myself, but there were the children. I went to him and said, "My people are willing to bet you two months' expenses in a sanatorium that they can teach you to protect your children from tuberculosis. I do not believe that they can cure you, but I do believe they can save your children. They are willing to bet on it."

Because of his gambling spirit, and because he wanted to save the children whom he had promised his wife never to desert and whom he loved, the old man called me back in two or three days and said that, to save his children, not to save himself, he would go.

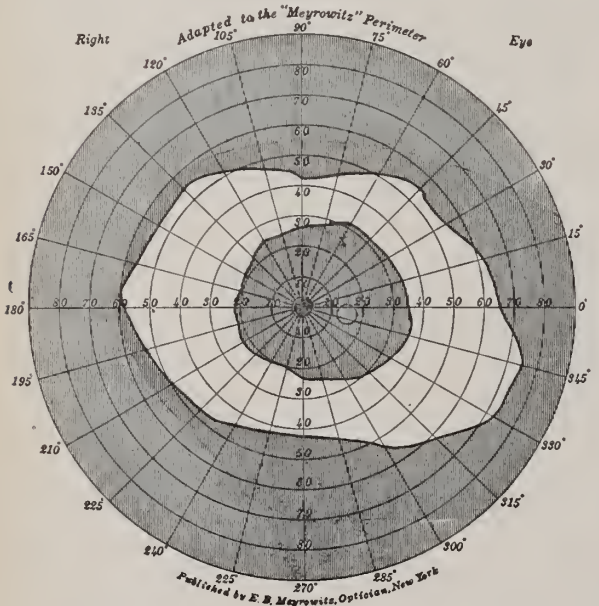
Ask these cases to go to a sanatorium, not for their own good but for the good of humanity, and you will succeed much oftener.

TOXIC BLINDNESS: REPORT OF TWO CASES.

By CLARENCE PORTER JONES, M. D., F. A. C. S.,
Newport News, Va.

It is quite commonly conceded by physicians that blindness occurring in apparently healthy persons may be toxic, also, that there is a post-bulbar œdema of the optic nerve which may ensue for a number of days before a well-defined neuritis becomes fixed. The literature for the past eight or ten years mentions scattered cases here and there. However, physicians have not, as a rule, given general recognition to the possibility of diseased nasal sinuses, as well as dental sepsis, as a frequent cause of such blindness. Galtung[1] reports a case of toxic blindness in a man 45 years old with peripapillary and pericentral scotoma caused by sphenoid sinusitis. Heuser[2] and

Haren report 3 cases, adding that recovery was rapid upon opening the sphenoid sinuses. Van de Hoeve[3] reports 8 cases traced to sphenoid and posterior ethmoid disease. Velter[4] and Liebault report a case caused by a sphenoid polyp. Valude[5] and Chantin report a case of bilateral blindness due to sphenoid sinusitis.

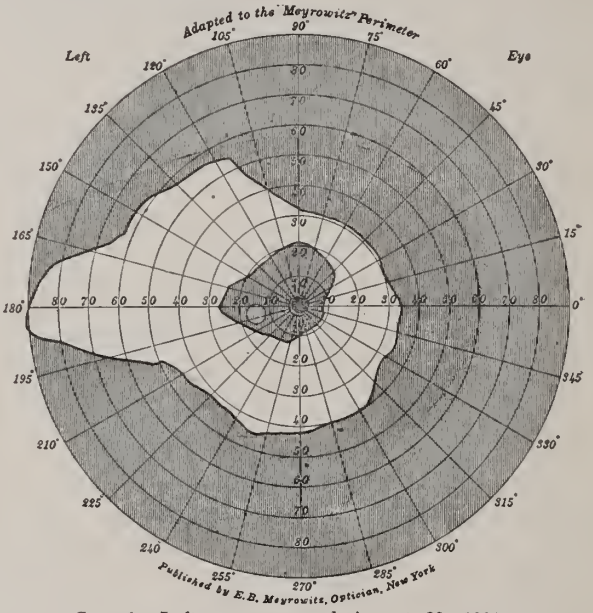


Case 1.—Right eye, measured August 23, 1924.

Thompson[6] says "The most striking and characteristic type of this class of cases manifests itself by a partial central scotoma of about 20° radius (concentric), with color blindness in the scotoma and not the slightest appearance of optic nerve disease discoverable by the ophthalmoscope." * * * "Of course, total atrophy of the optic nerve follows if the trouble is not promptly relieved at this stage."

"The diagnosis is easily made in the most characteristic form of the disease, and yet general tests, Wassermann, teeth, tonsils, intestines, etc., should not be omitted. If the case be seen when the vision is very far gone, the diagnosis must rest on the absence of fundus signs, the absence of visual disturbances in the fellow eye, and the absence of the other causation." He also reports 5 cases caused by sphenoid and ethmoid sinusitis, also some dental sepsis, in one of the cases. It is so apparent to every physician nowadays that apical teeth abscesses do cause toxic blindness that we will not give any of the multitudinous references on the subject.

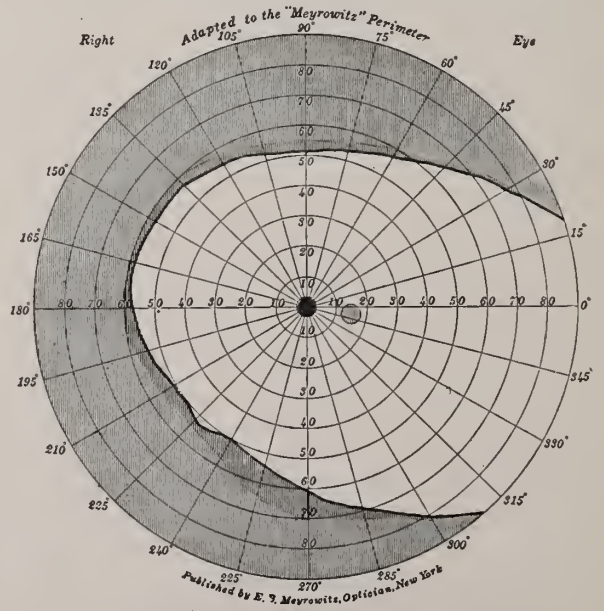
The two cases I herewith report will show, when taken early and prompt treatment given, good results may be expected in toxic blindness due to focal infection.



Case 1.—Left eye, measured August 23, 1924.

Case I. The patient, a truck farmer, 50 years old, was seen first on August 23, 1924. He consulted the writer for blindness in both eyes which he first noticed on August 10th.

History.—He has had the usual diseases of childhood—measles, chicken-pox, and whooping cough. He has suffered no other illness of any importance except four months prior



Case 1.—Right eye, measured November 17, 1924.

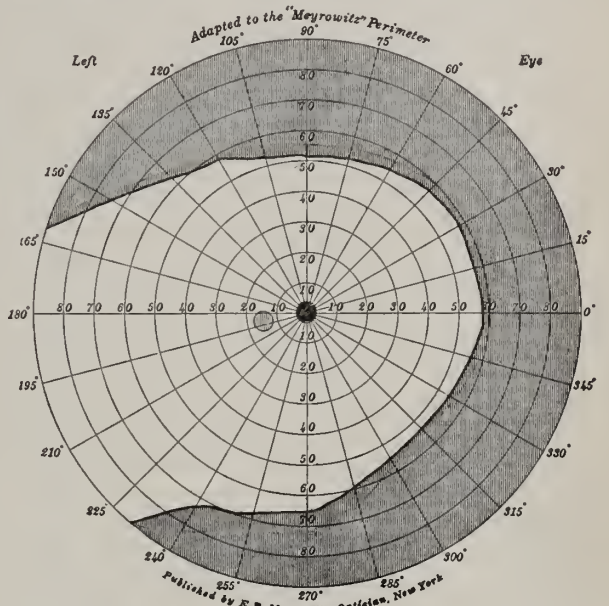
to this time he had facial neuralgia and stiffness in the muscles of the right arm and leg, which was promptly relieved by extraction of all his teeth under general anæsthesia (all teeth were abscessed). His parents were healthy persons and lived to mature age. He has three brothers and two sisters who are in good health. Two brothers are dead; one died from tuberculosis, and the other from alcoholism. He has two grown healthy children; none dead.

Physical Examination.—The patient was a well-developed man, 5 feet 6 inches high, weighing 156 pounds. Complexion the usual ruddy sunburn of the active field worker. The skin over the entire body was exceptionally free from any mark or blemish. His heart and lungs were normal; there were no palpable glands, and no evidence of nervous disorder. Physical examination was otherwise negative except for the eye condition. There was no evidence of oral sepsis, firm healthy gums, small rudimentary tonsils without any suspicion of infection. Ophthalmoscopic examination revealed no pathology except the nerve heads were somewhat paler than normal. Visual fields measured showed a large central scotoma in each eye. The peripheral fields were somewhat contracted. Central vision was but little better than counting fingers. Intraocular tension was 29 millimeters (McLean). Blood pressure was 163. The nose presented a good appearance, septum thin and rather straight; turbinates seemed healthy and there was no fluid or excessive moisture seen.

Transillumination revealed a cloudy right antrum. After thoroughly shrinking the nasal mucosa and applying suction, a limited amount of fluid was seen in the neighborhood of each sphenoid sinus ostium. The roentgenogram revealed no pathology except a dark right antrum.

Treatment.—On August 24th, each sphenoid sinus was opened and found to contain thin fluid, which was cultured separately. A goodly portion of the anterior wall was removed from each sinus. On August 26th, the patient remarked that his sight was coming back, that he could tell a white man from a negro 20 feet distant. The right antrum was opened and found to contain a cloudy fluid having some odor. This fluid was cultured.

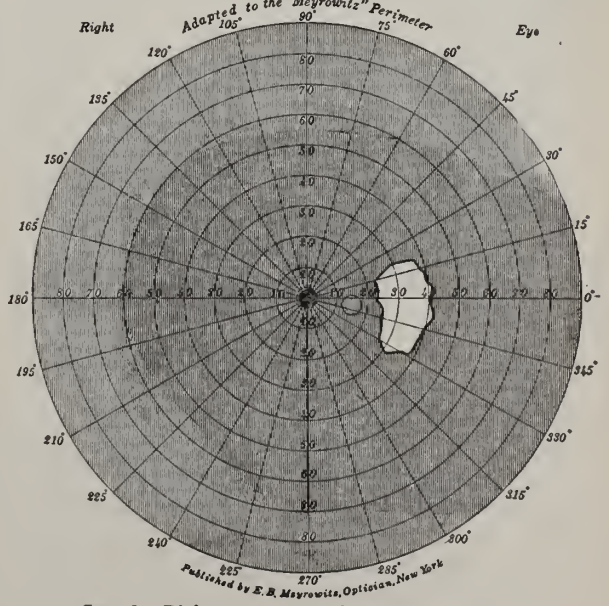
Laboratory Tests. — Blood examination showed haemoglobin was 80 per cent, that it was free from the plasmodium malaria, and was negative to the Wassermann reaction. The



Case 1.—Left eye, measured November 17, 1924.

urine was negative for albumin, sugar and casts, and showed only a few white blood cells. Cultures of each sphenoid sinus fluid and the antrum fluid, taken separately and grown separately, yielded the same organism in pure culture, namely, staphylococcus albus.

The medical treatment was confined to eliminants and tonics. The patient has reported



Case 2.—Right eye, measured September 28, 1924.

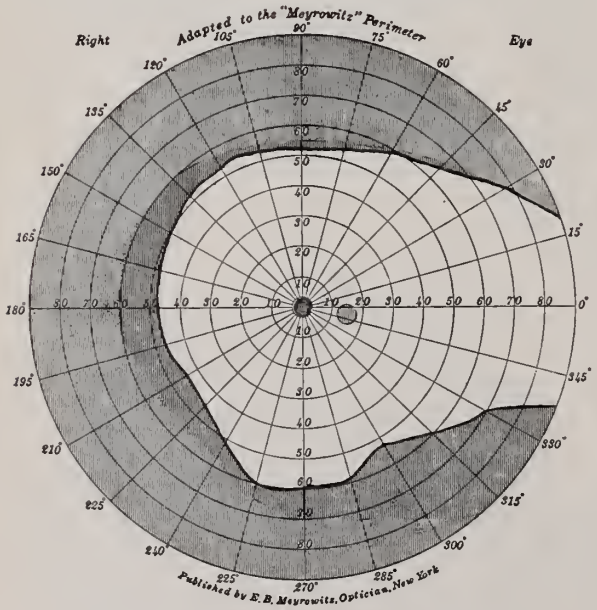
for examination almost daily since his first appearance. His vision measured November 17th: right eye 20/40, left eye 20/30, with no contraction of the peripheric fields. His appetite is good and his general appearance is that of a well person.

Case 2. The patient, a mechanic, 64 years old, was first seen on September 28, 1924. He consulted the writer for blindness in the right eye, which he said was of a few days' duration, perhaps ten days.

History.—He had had various illnesses, also a specific history. The latter condition was most actively treated by an able internist and he has had repeated periodic negative Wassermanns for over 3 years.

He was born in a foreign country and was brought to this country in early childhood; consequently, he had but little knowledge of any of his relatives.

Physical Examination.—The patient was a robust, husky Irishman, 6 feet 1 inch tall and weighed 210 pounds. His complexion was sunburned and ruddy. Heart and lungs were normal. There was nothing found abnormal



Case 2.—Right eye, measured October, 23, 1924.

except two abscessed teeth. The Roentgenogram revealed no pathology other than the teeth. The ophthalmoscope showed nothing except a normal eye-ground. Visual fields measured showed entire right to be dark except one small unaffected spot between middle and inner edge; left normal.

The nose and throat were negative as to any clinical appearance of disease. Blood pressure was 159. Ocular tension was 32 millimeters (McLean) in each.

Treatment.—On September 30th, the teeth indicated were extracted, and an apical abscess was found in each instance. On the next day he remarked on entering the office that there was some vision in his right eye; that he could tell a man from a horse. Six days later vision in the right eye was 20/70. October 23rd, vision in the right eye was 20/30,—the same as the fellow eye. Vision was tested last on December 9th, with the same result.

Laboratory Tests. — Blood examination showed the hæmoglobin to be 90 per cent, and negative to the Wassermann reaction.

The urine contained a trace of albumin and a few white blood cells. Culture from the teeth proved to be mixed staphylo- and pneumococci.

Bibliography.

1. Galtung, A.—Dis. Op. Nerve from Nasal Dis.—*Norsk. Mag. fur Laegevid.* 1917, p. 921.
2. *Heuser and Haren.*—Aces. Sinus Dis. and Op. Neuritis.—*Munch. Med. Woch.* 1918, p. 239.
3. Van der Hoeve, J.—Op. Nerve and Acc. Sinuses.—*Arch Ophth.* 1922, V. 51, pp. 210 to 222.
4. Velter and Liebault.—Trans. Soc. D' Ophthal. de Paris. 1922.
5. Valude and Chantin.—Am. d'Ocul. 1923, p. 649.
6. Thompson, Edgar S.—Some Clin. Phases of Ocular Involv. in Sinus Dis.—*Am. Jour. Ophth.* June, 1921.

SOME FEATURES REGARDING THE CLINICAL COURSE AND TREATMENT OF EPIDERMOID CARCINOMAS OF THE SKIN.

By S. W. BUDD, M. D., Richmond, Va.

Epidermoid carcinomas represent a very large group of tumors that vary in a most remarkable manner as to their clinical course and as to their reaction to treatment. They occur wherever squamous epithelium is found, and their malignancy depends largely on the seat of origin. If they arise from a mucous membrane they are usually more malignant than if they arise from the skin surface, while those found at the muco-cutaneous border occupy a mid-course as to malignancy.

There are two groups of epidermoid carcinomas*—the squamous cell epidermoid carcinoma of the acanthoma which arises from the cells of the Malpighian area and the baso-cell epidermoid carcinoma or rodent ulcer which

*The melanomes and the nevis carcinomas are not discussed in this paper.

arises from the columnar cells of squamous epithelium. In the skin these two groups are easy to recognize, but in epidermoid carcinoma arising from a mucous membrane the two types cannot be separated, but, instead, "the entire mucous membrane is reproduced and invaginated into the deeper structures."

In a general way it is convenient to divide epidermoid carcinomas into a superficial variety or one arising from the skin surface, and a deep variety or one arising from a mucous membrane. The clinical course and the treatment of the superficial and deep epidermoid carcinomas are so different that this division is quite practical. It is the purpose of this paper to present some of the features both as regards the clinical course and the treatment of epidermoid carcinomas of the skin.

Practically all epidermoid carcinomas pass through a precancerous stage which may be quite short or extend over a long period of time, possibly fifty or more years. During this precancerous or quiescent stage, they present the histologic appearance of malignancy, yet the clinical course is not in accord with the histologic picture. Many keratotic spots

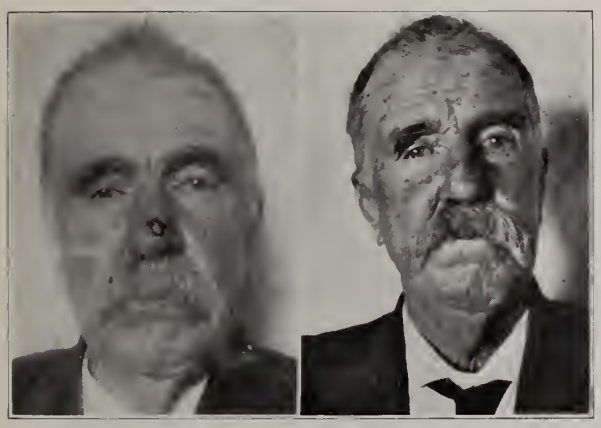


Fig. 1.—Acanthoma arising from a keratotic spot. Early ulceration. One radium treatment.

or papillomatous growths, regarded as malignant, are in reality benign, and forever will remain benign. In fact, only a small percentage of these so-called precancerous lesions go beyond the threshold of benignancy. If, however, in patients past forty these precancerous lesions show a tendency to scab formation or increase in size, and if simple non-irritative remedies will not remove them, they should be looked upon as early malignancy and should be treated accordingly.

Epidermoid carcinomas present a "diversity of origin, and of course a variety of microscopic and macroscopic pictures." It is not always possible to separate the acanthoma from the rodent ulcer macroscopically, yet histologically such a separation is easily accomplished. In the treatment of an epidermoid carcinoma it is important to know if we are dealing with a rodent ulcer or an acanthoma. We seldom excise a piece of tissue to determine the nature of the growth, yet in papillomatous or elevated growths this procedure can be done without difficulty, and if the zone from which the tissue is removed is treated with a cautery or carbolic acid it can be done with small danger to the patient. In the past year I have made it a rule to excise and study a portion of tissue removed from the growth whenever possible. I have been surprised at the frequency of the acanthoma.

Squamous cell epidermoid carcinomas or acanthomas show two distinct forms of origin: (1) a papilloma which in its early stage is freely movable; (2) a keratotic spot which indurates and infiltrates quite early. As the acanthoma grows, ulceration begins and the lesion then becomes a rapidly extending ulcer with raised indurated edges and a base or crater that presents a granular appearance. In rare instances an ulcer may not form until very late in the course of the disease. This type of tumor presents a cauliflower or mushroomlike appearance, but sooner or later the tumor is replaced by an ulcer.

According to Ewing, the acanthoma differs macroscopically from the rodent ulcer "chiefly in its early papillary appearance, more rapid lateral extension and more destructive course." This distinction is rather difficult in its application to an individual case, yet I have no doubt that in dealing with a large number of cases we would find Ewing's statement to be correct.

Squamous cell epidermoid carcinomas are found at the muco-cutaneous border (chiefly lip, glans, penis) and on the face, scalp and extremities. Irritation plays a very important role in their production. Tobacco, soot, paraffin, heat, chronic ulcers, scars, X-ray exposures, are some of the irritants to which acanthomas owe their origin. They tend to maintain the histologic appearance of the skin no matter where they are found. It is not unusual to find an acanthoma in the liver or lymph node showing an attempt to reproduce skin structures. At the edge of an ulcer where resistance

is low, the attempt to reproduce structures resembling normal skin is limited. In this region a more vegetative type of cell is seen. Hyper-chromatic nuclei and mitoses are much in evidence, although in this zone we may find pearl formation, intra-cellular fibrils and other evidence of differentiation.

With a low resistance on the part of a patient the malignancy of a tumor may enhance, just as the virulence of an organism may enhance by the passage through a susceptible animal. The resistance on the part of a patient controls in a measure the histologic picture of malignant growth. It is true, as Broders intimates, that in lip epidermoid carcinomas the malignancy varies with the amount of hornification, yet it is equally true that hornification depends largely on the resistance of the individual. At the edge of an acanthoma we find slight evidence of hornification, yet in the crater of the same ulcer where fibrosis, small round cell infiltration, giant cell formation and other evidences of defense on the part of the tissue are seen, pearl formation and hornification may be extensive.

If the work of Broders is accept,ed it will be necessary in the future not only to separate the rodent ulcer from the acanthoma, but also

Fig. 2.—Acanthoma. Rapid ulceration. Three radium treatments.

Fig. 3.—Acanthoma, cauliflower variety. Late ulceration. Three radium treatments.

to type the acanthoma in order to prognosticate before treatment is instituted. This can only be done by a microscopic examination.

Squamous cell epidermoid carcinomas are not very malignant; they metastasize late, usually after the patient has been weakened by an ulcer of long standing. Yet it is not uncommon to find in them active growth from the beginning, and especially is this the case in those arising from lupus scars. Askihara collected 122 cases of acanthomas arising from lupus scars, and of these 122 cases only nine recovered. I have seen three cases of squamous cell epidermoid carcinomas developing upon lupus scars and two of them died. One case is still under treatment.

Baso-cell epidermoid carcinomas or rodent ulcers are growths that develop from the columnar layer of the skin. They occur on the face, scalp, ear and nose, and most often at the muco-cutaneous borders (chiefly eye). Rodent ulcers are usually seen in persons past middle life but occasionally they may be found in young people. It first appears as a flat papule or a smooth wart-like tumor. There is at first little tendency to growth or ulceration, but after a period of quiescence and usually inadequate medical treatment ulceration and spread takes place. One of the most noticeable traits of a rodent ulcer is its attempt to remain superficial. The base or crater of the ulcer produces an enormous amount of dense, fibrous tissue which tends to limit the disease. The growing edge of the ulcer is slightly elevated, but not so marked as in the case of an acanthoma. It is not an unusual finding to see the base of a rodent ulcer heal and the edge show active growth. The ulcer, if the tissues lend little resistance, "may extend through the muscles and strip all tissue down to the bone." In advanced cases, an eye, nose or an ear my be lost in the process. The periosteum offers a barrier to invasion, but this in late stages of the disease may be involved. Erosion of a large vessel may result in death, or death may ensue from cachexia, suppuration or mental depression.

The tumor cells of a rodent ulcer resemble the basal cells of the squamous epithelium.

Flat and pavement cells, hornification, prickly cells, and pearl formation are usually absent; in fact, the cells of a rodent ulcer attempt to retain their embryonal character throughout.

Reactive changes produced in tissues by acanthomas and rodent ulcers may be extensive. Rounds cells, lymphocytes, plasma cells, and giant cells are seen about the lesion, but if for any reason the resistance of the patient should become lowered, the reactive changes are diminished. It is not unusual to see extensive fibrosis and calcification which may materially hinder the progress of an epidermoid carcinoma, and in rare instances may lead to a spontaneous healing of it. After an epidermoid carcinoma has been present for some time, the ulcer becomes secondarily infected with streptococci and other pus forming organisms which may influence the course of the disease. The secretion from an epidermoid carcinoma is first watery, later purulent, and still later, if erosion is a prominent feature, an admixture of blood and pus.

Epidermoid carcinomas are not particularly malignant; in fact, it is a rare occurrence for this disease to invade the surrounding lymph nodes or to present widespread metastases. In treating an epidermoid carcinoma it should always be borne in mind that the condition is most always a local disease and one that responds to treatment. Yet, if the proper treatment or the correct dosage is not given, an epidermoid carcinoma can be converted into a very malignant growth with widespread metastases.

In the early stages of an acanthoma or a rodent ulcer a number of remedies are effective; among them are escharotics, cauterization, excision, X-ray and radium. Time will not permit a discussion of the merits of the several forms of treatment, but at the same time I cannot pass this subject without a word of warning as to the danger accompanying the treatment of epidermoid carcinomas with escharotics. Irritative and insufficient treatment in all forms is contra-indicated and very dangerous to these growths. I have seen some wonderful scars resulting from the use of escharotics just as good as can be obtained by the other methods of treatment, but the question always arises in my mind if the disease treated was an active growing tumor or one that should be classed amongst the benign or precancerous conditions. I have seen some pitiful cases resulting from the prolonged and injudicious treatment with these remedies.

In the treatment of epidermoid carcinomas of the skin with radium several factors have to be constantly before us, namely:

1. Is the disease an acanthoma or a rodent ulcer?
2. Is the disease a papilloma or an ulcer?
3. Is the ulcer attached to bone?
4. Did the disease arise from a lupus scar?
5. Is infection the predominating element?

If the disease is an acanthoma it will require a great deal more radium than if it is a rodent ulcer. The quantity of radium used in the treatment of a tumor varies directly with the differentiation seen in the cells of the growth. It is very important then to be able to recognize the different types of acanthomas and the difference between the acanthoma and the rodent ulcer, even if a microscopic examination has to be resorted to as a mode of diagnosis.

If the disease is a papilloma it can best be treated by emanation seeds or by radium needles imbedded in the growth, usually at the skin surface and parallel to the skin. A cautery may be employed to remove the growth lying above the skin, and this is followed by an application of radium in the form of a plaque to the base of the papilloma.

Fig. 4.—Rodent ulcer. Three radium treatments.

In a superficial ulcer with a slight elevation of the edges, the treatment can be done with a plaque, but if the edges are greatly indurated or elevated the treatment should be that of a papilloma. In other words, emanations, radium needles and cautery to the raised edges, and a plaque to the flat portion.

If the growth is attached to the bony structure, it is difficult to decide what form of

radium therapy is to be employed; probably all will fail. Near the edge of the growth, if it be possible to bury radium emanations or radium needles, the spread of the condition may be stopped. In the crater of the ulcer where the bone has been invaded, the gamma ray should be used in rather large doses.

If the disease rises on a lupus scar, it is extremely resistant to radium, especially if the disease shows marked activity before treatment is started. I have had two such cases and both died. I have one case that is apparently being held in check by radium. The disease, however, was caught in its incipiency and had not invaded the underlying tissues to any great extent when the patient presented himself to me for treatment.

If an epidermoid carcinoma is located on the ear, and the cartilage has been invaded by the disease, it is not well to make too many radium applications. If one or two treatments fail to remove the growth or to arrest the condition, the patient should be turned over to a surgeon for radical excision. Even in my short term as a radiologist I have seen the fallacy of too many radium applications in these cases.

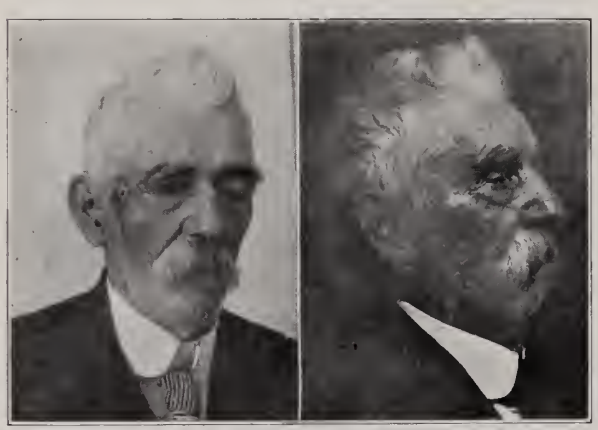


Fig. 5.—Rodent ulcer showing a tendency to heal spontaneously. Two radium treatments.

If an active infection exists, a preliminary course of medical treatment with non-irritating antiseptics should be given before radium treatment is instituted. A week or two of frequent washings and wet dressings with Ochsner's solution or chloral solution will sometimes prevent the disagreeable after-effects of radium therapy, such as cellulitis or erysipiloid condition.

Radium is indicated in small epidermoid carcinomas of the face as the cosmetic effect of the treatment is certainly equal to and perhaps superior to all forms of treatment. In epidermoid carcinomas about the eyelids, where a small amount of scar tissue will produce a rather marked alteration of the features of the patient, or in epidermoid carcinomas occurring in the folds of the face or in the region of the external nares, radium therapy is especially desirable.

In conclusion, I would like to emphasize the following points:

1. The early diagnosis and radical treatment of epidermoid carcinomas.

2. The importance of separating the acanthoma from the rodent ulcer. If possible. this should be done in all cases even if a microscopic examination has to be resorted to.

3. The danger of treating an infected epidermoid carcinoma without preliminary medical treatment.

4. The malignancy of an acanthoma arising from lupus scar.

1000 *West Grace Street.*

WHY ARE SO MANY PHYSICIANS SUCH EASY MARKS FOR FAKE PROMOTERS?*

By JAMES M. MILLER, M. D., Crockett, Va.

This paper, as you see from its title, is based on the assumption that many physicians fall easily for the schemes of fake promoters. This may, or may not be true, but so far as this paper is concerned, it makes no difference, as it is by no means presented as the finished product, but simply to provoke discussion. And, as it is said that "An honest confession is good for the soul," I will also state that it is based not upon observation alone, but experience, as well.

There are several reasons that could be presented, to account for the easy manner in which we succumb to the alluring statements of this class of gentry, but we will consider only two. The first, I mention but to condemn, the erroneous one given by the laity, namely, "easy come, easy go." In other words, the physician makes his money so easily, that, as is usual in such cases, it slips through his fingers just as easily. We physicians know, that there is absolutely nothing at all to this statement, that if preparation is considered, we, with the exception of the ministry, are perhaps the poorest paid profession in the world. The laity forgets that we have spent

*Read at the meeting of the Southwestern Virginia Medical Society, in Marion, September 11 and 12, 1924.

from six to eight of the very best years of our lives, and as many thousands of dollars, in mere preparation for the practice of medicine.

The second reason I present to account for our easy fall is one that I have never seen, nor heard mentioned, so perhaps it will not bear the light of investigation. It is because of the manner in which we are mentally trained, especially before, but to a certain extent also after graduation: that is, we have too much of our thinking done for us, too much of it is second hand. While this is more or less true of all professions, I believe it applies in greater degree to ours than to others. Let us consider briefly some of the branches we study. Take histology for instance. In this we are told exactly what to look for, how to look for it, and how to recognize it when we find it. In anatomy, which might more or less aptly be called the geography of the human body, if we wish to trace a certain structure, be it nerve, blood vessel, muscle, or what not, we are told to the minutest detail by what it is bounded on the north, south, east and west. Coming a little higher, to the study of the practice of medicine, we are told that a certain set of symptoms, related in a certain way, spells the name of a certain disease, in other words, makes our diagnosis for us. Fortunately for us, however, there are very few cases that present the classical symptoms of the text-book, hence we are compelled to exercise more or less individual, independent thought in arriving at a correct diagnosis. After our diagnosis is made, our text-book kindly outlines a complete treatment. Thus we see that the study of medicine is in great part a matter of routine, of following without question the beaten path made by our predecessors. Most of us are so constituted by nature, in other words so lazy, that we are content to follow the line of least resistance, and, whenever possible let the other fellow do our thinking for us. Fortunately though, there are always a few who are not satisfied with this sort of thing, and accept the conclusions of no one, unless they can see the reasons therefor. These are the ones who add to the sum total of our medical knowledge.

Not only does this sort of training accompany us through school and hospital days, but we cannot get entirely away from it, even after graduation. Soon after we commence practice, we begin to receive literature from the various pharmaceutical houses, describing in most glowing terms their recent products. Soon this shower of mail becomes a veritable deluge, all but drowning us each morning in its great volume. Do not understand me as condemning these houses, for I am not. They do a great work, often introducing a preparation which is pure gold. Following close upon this descriptive literature is the detail man, usually a very suave, genteel kind of fellow, who is prone to compliment us upon everything imaginable, and perhaps some that are not. After jollying us for a longer or shorter time he comes to the object of his visit. He asks us, in a more or less casual sort of way, if we have been using a certain preparation. If we have the courage to say "no," we see a very pained and pitying expression assume form upon his countenance. We see at a glance that he is indeed very, very sorry for us, and, as the principal excuse for our existence is the relief of suffering whenever possible, we resolve then and there, if we are dispensing physicians, to relieve him by giving him a substantial order for this preparation. Having done this, we lean back with a feeling of contentment, of satisfaction for having relieved his distress, and having made a fellow-being happy. Strange to say though, this feeling does not last long, as we are soon convinced by this gentleman that his house has many products, just as efficacious in their field of usefulness as is this prepartion in its field. The result is, that when this gentleman bids us adieu, he has our order for quite an amount of high priced specialties which we do not want, many of which we probably will not use, and some of which in five years will have been forgotten.

Usually it is not long after this until other gentlemen begin to call upon us, gentlemen a little more suave, a little more polite, and a little more profuse in their congratulations and flatteries than were their predecessors. While our former callers were interested principally in our success as practitioners, we soon learn that these later callers are interested wholly in our financial success. They convince us quite conclusively that we are not receiving adequate compensation for services rendered, that at our present rate we will never be able to accumulate a competency for the rainy day that awaits us all. They prove, however, to our entire satisfaction, that by investing a few hundred, or better, a few thousand, in the enterprise which they represent, we will soon be on easy street, and John D. Rockefeller and Henry Ford will have nothing on us what-

ever. Speaking of Easy Street, why is it so named? It has occurred to me that it is not because of the ease with which we attain it, or by the ease with which we maintain our residence upon it, but the easy facility with which we leave it, kindly, courteously, yet most efficiently, assisted by the class of gentlemen of whom we are speaking. Let us get back to the subject, though. Our friend the stock salesman has in some mysterious, vague sort of way heard of our great influence in the section of country in which we live, and of our marked business abiility, and his company is very desirous of receiving some of the benefits resulting from this great prestige which we possess. For this reason he has traveled several hundred miles from some distant city to let us in on this wonderful proposition. But while he, as well as his company, is extremely anxious to have us connected with them, we will have to act very quickly as there are but a few shares of stock left, which may even now be placed, as a certain well known financier is very desirous of obtaining possession of them. Should this have happened, however, our friend the salesman will endeavor by every means within his power, stopping short of nothing except the use of dynamite, to pry loose the desired number of shares from some block of stock already sold and highly prized by its owner. As the ground has been so amply prepared by our previous training, this seed finds ready lodgment in congenial soil. Or, to use another metaphor, being suckers, we bite vigorously, almost viciously, in fact, more like horny heads than mere suckers. The result is that when this gentleman takes his departure, he has our check or negotiable note for quite a sum, and in a few days we receive the most beautifully engraved certificate of stock that we have ever seen, proclaiming to the world, that we are sole owners of a certain number of shares of stock, it may be, in an oil company, in which all the oil ever produced will be used to lubricate the stock salesman's tongue, or it may be in a company to be organized to manufacture ice at the North Pole, or in a plant to be erected at the equator to store up the heat rays of the sun against a rumored strike upon which Old Sol intends going sometime in future ages. This sort of thing would be extremely ludicrous were it not so very pathetic. To think that a class of men supposed to be more intelligent and better informed than the average, would fall for this sort of talk is simply ridiculous, but we often do fall, and fall hard.

What can be done to remedy this sort of thing? I frankly admit that I do not know. Human nature has been pretty much the same through all the ages, and will probably remain so until the end of time. Instead of one sucker being born each minute, there are probably two or three, because of the increase of population. If Patrick Henry were with us today, he would probably exclaim that "Eternal vigilance is the price of financial success." The dictum "Once a sucker, always a sucker" usually holds true, but fortunately, not always. If we are so unfortunate as to have our names enrolled upon this list, I believe we should endeavor by every means within our power to cultivate such an indomitable, invincible will power that will enable us to say "no," to mean it, and to stick to it. Nothing but this, save death itself, or utter financial ruin, will purge our names from this list.

Probably a safe rule to follow would be never to speculate at all, and, unless we are one of those rare combinations—a good business man as well as physician—never to make an investment without first consulting a friend in whose business ability and integrity we have the utmost confidence.

NERVOUS AND MENTAL MANIFESTATIONS FOLLOWING CHRONIC INTOXICATION WITH VALERIAN

By ALFRED GORDON, M. D., Philadelphia, Penn.

Valerian is one of the most active antispasmodic remedies. Everyone of its preparations has similar physiologic reactions although they differ in degree and intensity. The characteristics of the reactions consist at first of stimulation of the brain and medulla. This phase, which is brief, is promptly followed by a more or less prolonged period of fatigue, apathy, and a paretic state. The modifications in the function of the motor apparatus, also in the reflectivity, are apparently of central origin and not of peripheral as the first impression may be. The sympathetic nervous system is apparently also involved, since the vasomotricity is equally influenced: the vasoconstrictors are manifestly affected as the arterial tension is elevated. On the other hand, when stronger doses of valerian are taken, hypotension is observed.

Not only the circulatory but also the re-

spiratory apparatus is influenced by valerian, or by its derivatives. The number of respiratory movements is decidedly augmented and again probably through a cerebro-medullary mechanism.

Physiological as well as experimental investigations show conclusively that the chief effect of valerian lies in the antagonism to convulsive or excitant states. L. Branton, for example, observed that valerian arrested the spasmodic action of small doses of strychnia. All excited states of the nervous system being manifested in cerebro-medullary phenomena in the domain of circulatory, respiratory, or digestive apparatuses become diminished, greatly modified or removed by administration of valerian. In Grisar's experiments there was a diminution of reflexes, somnolence, paretic state and general depression of the nervous system (Inaugurale Dissertation-Bonn). Sikorska's experiments (These de Geneve) show that small doses are an excitant of the motor cortex; large doses produce depression, and from all doses there is a diminished resistance to fatigue.

In a general manner valerian is to be considered as an excitant terminating in depression or perversion of motor functions. To the same conclusion arrived Ch. Fere (Comptes Rendus de Soc. de Biologie LVI; p. 547, 1904). Finally in more recent investigations, H. Boruttan (Deut. Med. Wchnschr., 3 Oct., 1918, p. 1109) demonstrated that under the influence of valerian dogs become quiet and react little to external stimuli; they remain in a sitting position with open eyes, and their reflex irritability is diminished. Furthermore, when larger amounts of the drug are given by injecting it into the lymphatic channels, prolonged paralysis of the central nervous system is observed.

In the literature at my disposal, with one single exception, no mention is made of symptoms referable to the function of the cerebellum under the influence of valerian. E. Durand, in his book on valerian, published in 1921, is the only author who in his experiments with valerian on mice and guinea-pigs observed manifestations not only of disturbed cerebrum and medulla but also of the cerebellum, namely, rotation around the axis and loss of equilibrium.

The writer has also failed to find in the literature records concerning prolonged use or chronic use of valerian. The majority of clinical and experimental investigations on the subject are concerned exclusively with immediate effects of the drug, but not with remote reactions after the patients had been taking it for a continuous period of time.

In view of the fact that valerian is useful as a sedative medication in hysterical and other functional disorders of the nervous system, also as a rapidly active stimulant in certain low states which occur in acute febrile diseases, it appeared interesting and instructive to put on record the history of a case which presented, in addition to the well-known characteristics, two special features not mentioned in the literature, namely, the consequence of a chronic intoxication with valerian and the cerebellar manifestations.

The preparation used in this case was tincture of valerian. At this juncture it may not be superfluous to mention that the cerebro-medullo-cerebellar, as well as the mental phenomena, in the opinion of a sceptical observer, may have been due to the alcoholic contents with which tinctures are usually prepared. To refute this possibility it is well to bear in mind the recent experimental work of Macht and Ting, published in the *Jour. of Pharmacology and Experimental Therapeutics*, 1921-22; p. 361). They have shown that the effect of valerian is not due to inhalation of alcohol contained in the tincture of valerian, because controls made with the same quantities of ethyl-alcohol alone failed to produce the symptoms caused by the drug.

Mrs. A. H., 35 years of age, following a difficult and protracted labor, commenced to use tincture of valerian for her insomnia. At first she was given a half of a drachm. Gradually, without asking for advice of her physician, she increased each individual doze. Having succeeded in obtaining the drug without prescriptions, she continued using it daily. At the time she came under my observation, I was informed that the patient had been using the drug, to the exclusion of any other medication, during a period of eighteen months. Her daily ratio of one ounce was taken in teaspoonful doses several times a day. Prior to the date when she commenced the use of the drug she was in excellent condition. The somatic recovery from the difficult labor was also complete. There was no history suggesting lues. She has three healthy children; the Wassermann test of her blood, as well as of her husband's, taken twice, was negative. The

family history was also normal. The patient prior to or during her present illness never used alcoholic beverages. Her mental condition was formerly good. A complete blood examination showed a somewhat low hemoglobin content (75). Red blood corpuscles 4,000,000. No abnormalities were found in the blood cells. The slight anemia present was not sufficiently pronounced to cause the symptoms referable to the central nervous system. Urinalysis showed: specific gravity 1030; traces of albumen; no sugar; a few hyaline casts and cylindroids.

The patient's condition was as follows: There was a marked mental lebetude; an inability to carry out correctly orders given: at first she tried to comprehend the question asked, then she stared, hesitated; attempted to do what she was told, interrupted her attempts, commenced over again and finally acted in a reverse manner. For example, when told to stand up, she extended her legs; when told to extend the arms, she flexed them; when told to protrude her tongue, she closed her mouth tightly; when told to write, she did not know how to go about it. When a pen holder was placed in her hand, she attempted to write with the opposite end of it. Objects shown her she misinterpreted, and when reminded of the correct names, she hesitated before repeating them and soon forgot them. When left to herself, she walked in the wrong direction, even at the point of danger: she was apt to walk towards an empty space. She might attempt to handle burning objects if not prevented from doing it. She often talked to herself in a most unintelligible manner. She had to be fed. She was extremely unclean, handled the excretions, urinated wherever she happened to be. She showed no delusions, but a hallucinatory state was present, as frequently she was found talking in an animated manner with her eyes directed towards the ceiling, moving her hands in the same direction. At times she became delirious, at others stuporous, or mute; she was totally oblivious to surroundings.

Somatic Phenomena.

The gait was decidedly ataxic, such as seen in cerebellar lesions. There was a tendency to fall backwards: the trunk did not follow the legs (asynergia) and at the same time a zigzag movement of the body was evident: she walked from side to side. She dragged her legs, scraped the floor in walking. It was a great effort for her to go up the stairs: she was obliged to hold on to the banister with one hand and with the other she held firmly to another person; then she tried to raise her foot, but the toes invariably struck the woodwork before the foot was placed on the next step. Station with open and closed eyes was impossible; she immediately fell backwards. The tonicity of the lower limbs was decidedly lowered. Their flaccidity was marked. Although voluntary movements were possible, nevertheless they were extremely slow. Passive movements were carried out with great facility in view of the hypotonia. The muscular power and tonicity in the upper extremities were identical with those of the lower ones. The patellar tendon reflexes were markedly diminished. The same was observed with the tendon Achilles reflex. As to the plantar reflex there was no response at all to stimulation of the sole; sometimes there was a mild extension. The same results are obtained with the other methods (Oppenheim, Chadwick and Gordon). There was some ataxia in the upper extremities observed with both the pointing and the finger-to-nose tests. In the first test the patient's finger never reached the object placed before her, but invariably fell externally and at a considerable distance from it, more with the right than with the left hand. In the finger-to-nose test the index reached the point of destination only after several excursions in all directions. The tendon reflexes of the upper extremities were obtainable, but with great difficulty; the amplitude of the arms on testing was considerably small. Adiadochocinesia was distinct in the right hand: in the rapid pronation and supination movements this hand was manifestly lagging and did not keep pace with the left hand.

General sensibility to all forms was diminished. Tests for special sensations could not satisfactorily be carried out in view of the patient's disturbed mentality. The eyegrounds with the exception of a slight congestion of the retinal blood vessels were normal. The ocular muscles functionated normally, but there was, however, a lateral nystagmus when the eyes turned to the right.

The speech did not show the disturbances which were usually observed in organic lesions of the brain. There was no motor aphasia or anarthria, but the words were uttered very slowly and at times they could not be under-

stood fully, the labial letters especially being unclear. As to the sensory aphasia, it could not be determined because of the incoherent mental state.

The course of subsequent events in this case was as follows: By gradually decreasing the quantity of valerian, by prolonged rest in bed, appropriate dietetic and hygienic measures, and finally by complete withdrawal of the drug, considerable improvement was obtained. At the time of writing these notes, the cerebral and cerebellar manifestations have totally disappeared. However, there is still present a state of asthenia which has not yet been completely removed.

To sum up the striking manifestations of the present case, we find a combination of mental and nervous phenomena such as are frequently observed in classical psychoses and in organic diseases of the nervous system. As to the former, there are present many essential elements of a confusional psychosis, which is frequently observed in post-infectious processes of any origin, or in toxic states from acute or chronic absorption of organic or inorganic chemical elements. The absorbing interest in this case lies in the cerebellar manifestations which are ordinarily encountered in tumors, vascular lesions or lues of the cerebellum.

The morbidity of this organ was so striking at first glance that no other possibility suggested itself. Further examination and observation pointed more and more strongly that a toxic state could simulate any gross lesion of the central nervous system. It is well known that syphilis could at any stage present symptoms of cerebral, medullary, cerebellar, and peripheral character. Recently a young married woman, wife of a physician, developed typical phenomena of a cerebellar nature all confined to one side. All the characteristic symptoms were present with the exception of papillary oedema. The patient was treated with antiluetic remedies and made a complete recovery.

In cases of acute or chronic morphin intoxication, changes in the motor and sensory apparatuses, also in reflexes, are commonly observed. In a recent case of heroin intoxication there were present symptoms referable to cortical irritation with epileptiform convulsions as a consequence. (*Journal of American Medical Association*, April 2, 1921).

Valerian is an antispasmodic like morphin or heroin, and, like them, may be useful in many instances of nervous irritability. On the other hand, like them, it may become damaging directly to the central nervous system when a state of valerian toxicity develops. Experimental data related above go parallel with clinical observation.

The pernicious effect produced by a prolonged ingestion of valerianate preparations on the economy in general, and on the central nervous system in particular, finally, the occurrence of cerebellar phenomena which with one exception have never been mentioned by experimental investigators, all these reasons warranted the writer to place this case on record.

1812 *Spruce Street.*

THE ABDUCTION TREATMENT OF FRACTURE OF THE NECK OF THE FEMUR.*

By BERNARD H. KYLE, M. D., Lynchburg, Va.

This fracture deserves special mention for the reason so many patients with fracture of the neck of the femur are not treated, either because of the physical condition of the patient or because the physician is not familiar with the reduction.

The patient, having been anesthetized, is placed on a pelvic support with a perineal bar, the shoulders resting on a support of equal height. Two assistants make manual traction on the extended limbs, drawing the perineum firmly against the bar and completely reducing the shortening on the injured side, the surgeon meanwhile lifting the thigh upward if it is below the place of its fellow. The limb is then rotated slightly inward. Both limbs are now extended and under traction. The sound limb is abducted to the limit first and retained in this position to maintain balance of the pelvis and give the range of normal abduction for this particular patient. The injured limb that is now under manual traction and internal rotation is slowly abducted until the limit is approached while the physician makes pressure over the great trochanter. Here the trochanter is brought into contact with the side of the pelvis, thereby overcoming the active agents of deformity. The patient is now ready for the plaster, stockinette having been applied from the toes to the axilla previous to the anesthetic. Extending from the top to pelvic bones under the stockinette is a wide piece of bandage to be used as a scratcher. Sheet wadding is now placed around the patient from toes to

*Read before the meeting of the South Piedmont Medical Society, in Danville, Va., November 18, 1924.

axilla using a large amount around the body. Next, piano felt is placed over each anterior superior spine of the ilium and sacrum. It is well to split this felt, thereby adding to the softness and give of the felt. The plaster is now applied from toes to axilla on the injured side. It is well to incorporate a piece of thin steel in the plaster opposite the hip and under the knee to add to the strength of the plaster. The plaster having been properly trimmed to show all toes and give sufficient means of using the bed pan, the patient is placed on a firm bed with the injured limb extending from the bed. The plaster should not be covered with the bed clothing but left exposed to dry.

These patients should receive the best nursing possible. the most important of all being to turn the patient on face three times daily of one hour each.

I have treated a few cases of fracture of the neck of the femur by means of a Bradford abduction splint with very good results. This brace maintains abduction, prevents weight bearing, and allows traction. This brace has been used only for those cases which I have not had the courage to place in the recumbent position in plaster because of old age. The difficulty regarding the brace is the delay in having the same made.

The one plea of this paper is that more fractures of the neck of the femur be treated by means of this reduction or by the use of the Bradford abduction brace.

The author of this reduction, Dr. Whitman, to whom I am indebted for this information, does not allow his patient to do weight bearing for one year. Personally, I have removed the plaster in eight weeks and allowed the patient up with crutches the twelfth week with good results. I must say, however, that the longer the patient is prevented from doing weight bearing the better. All of my cases treated by this method have walked without a limp and have had no actual shortening.

Medical Building.

The Truth About Medicine

In addition to the articles enumerated in our letter of December 27, 1924, the following have been accepted:

Benzol Products Co.
  Cinchophen—B. P. C.
Hynson, Westcott and Dunning
  Antimony Sodium Thioglycollate
  Antimony Thioglycollamide
Eli Lilly and Co.
  Iletin (Insulin—Lilly), U-10, 10 c.c.
  Iletin (Insulin—Lilly), U-20, 10 c.c.
  Iletin (Insulin—Lilly), U-40, 10 c.c.
H. K. Mulford Co.
  Ampules Solution Pituitary Extract—Mulford, 0.5 c.c.
  Iodo-Casein With Chocolate
Parke, Davis and Co.
  Iron Citrate Green
    Ampules Iron Citrate Green—P. D. and Co., ¼ grain.
    Ampules Iron Citrate Green—P. D. and Co., ¾ grain.
    Ampules Iron Citrate Green—P. D. and Co., 1½ grain.
  Mercurettes
  Proposote
    Proposote Capsules 5 minims
    Proposote Capsules 10 minims
Powers-Weightman-Rosengarten Co.
  Tryparsamide
Pure Gluten Food Co.
  Hoyt's Protein Cereal
Sharp and Dohme
  Tincture Digitalis Purified (Fat Free)—S. and D.
Standard Chemical Co.
  Standard Radium Solution for Intravenous Injection, 5 micrograms Ra.
  Standard Radium Solution for Intravenous Injection, 10 micrograms Ra.
  Standard Radium Solution for Intravenous Injection, 25 micrograms Ra.

NEW AND NON-OFFICIAL REMEDIES

Diphtheria Toxin Antitoxin Mixture 0.1L+(Gilliland).—A diphtheria toxin antitoxin mixture (see New and Non-official Remedies 1924, p. 299), each c.c. of which represents 0.1L+ dose of diphtheria toxin neutralized with the required amount of diphtheria antitoxin. Marketed in packages of three 1 c.c. ampules; in packages of thirty 1 c.c. ampules; in packages of three 1 c.c. syringes, and in ampules containing respectively 10 c.c., 20 c.c., and 30 c.c.—Gilliland Laboratories, Ambler, Pa.

Mallinckrodt Tetrabromphenolphthalein Sodium Salt.—A brand of tetrabromphenolphthalein sodium.—N. N. R. For a discussion of the properties, actions, uses and dosage, see Jour. A. M. A., December 27, 1924, p. 2095. Mallinckrodt tetrabromphenolphthalein sodium salt is supplied in 5 Gm. ampules. Mallinckrodt Chemical Works, St. Louis. (Jour. A. M. A., January 3, 1925, p. 37).

Bacillus Bulgaricus—Squibb.—A culture of bacillus bulgaricus, marketed in tubes, each containing 12 c.c. Bacillus bulgaricus—Squibb is designed for internal administration and for direct application to body cavities, abscesses and wounds. See "Lactic Acid-producing Organisms and Preparations," New and Non-official Remedies, 1924, p. 169. E. R. Squibb and Sons, New York.

Neorobin.—A product obtained by the reduction of chrysarobin. The actions and uses of Neorobin are the same as those of chrysarobin. It is claimed that neorobin is somewhat more active than chrysarobin and that its staining qualities are less than those of chrysarobin. Like chrysarobin, neorobin is used in the treatment of skin diseases, especially in psoriasis. It is used in the form of ointments which must be freshly prepared. Neorobin is marketed in vacuum sealed tubes containing 1 and 5 grains, respectively. H. K. Mulford Co., Philadelphia.

Intracutaneous Tuberculin for the Mantoux Text.—A preparation of Tuberculin Koch (New and Non-official Remedies, 1924, p. 309), marketed in pack-

ages of one vial containing 0.0001 Gm. tuberculin "O. T." accompanied by a vial containing physiological solution of sodium chloride sufficient to make 1 c.c. Lederle Antitoxin Laboratories, New York. (Jour. A. M. A., January 10, 1925, p. 119).

Tablets Benzyl Fumarate—Abbott, 5 grains.—Each tablet contains 5 grains of benzyl furmarate—Abbott (Jour. A. M. A., July 24, 1924, p. 41). The Abbott Laboratories, Chicago.

Ampules Solution Pituitary Extract—Mulford, 0.5 c.c.—Each ampule contains 0.5 c.c. of pituitary solution—Mulford, New and Non-official Remedies, 1924, p. 229, H. K. Mulford Co., Philadelphia. (Jour. A. M. A., January 17, p. 203).

Ovarian Substance—L. and F. Desiccated.—The entire fresh ovary of the hog, freed of extraneous matter, dried and powdered without the addition of diluent or preservative. For a discussion of the actions and uses of ovary preparations, see New and Non-official Remedies, 1924, p. 220. The product is marketed in 2 and 5 grain capsules and in 2 and 5 grain tablets. Lehn and Fink, Inc., New York.

Ovarian Residue—L. and F. Desiccated.—The residue from the fresh ovary of the hog, after removal of the corpus luteum, dried and powdered without the addition of preservative or diluent. For discussion of the actions and uses of ovary preparations, see New and Non-official Remedies, 1924, p. 220. The product is marketed in the form of 5 grain capsules and 2 and 5 grain tablets. Lehn and Fink, Inc., New York.

Corpus Luteum—L. and F. Desiccated.—The fresh substance of the corporea lutea of the hog, dried and powdered without the addition of diluent or preservative. For a discussion of the actions and uses of ovary preparations, see New and Non-official Remedies, 1924, p. 220. The product is marketed in the form of 2 and 5 grain capsules and 2 and 5 grain tablets. Lehn and Fink, Inc., New York.

Proposote.—A condensation product of creosote and phenylpropionic acid. It contains the equivalent of 50 per cent of creosote. Proposote is not decomposed by the gastric fluids and passes the stomach practically unabsorbed. It is decomposed in the intestine and its components are chiefly eliminated through the kidneys, but it is claimed that a part of the liberated creosote is eliminated through the respiratory tract. Based on this latter elimination, the administration of Proposote is claimed to be of value in bronchitis and coughs, due to bronchial infections. Proposote is used for the same purposes for which creosote is administered. It is marketed in the form of capsules containing 5 and 10 minims, respectively.—Parke, Davis and Co., Detroit.

Standard Radium Solution for Intravenous Injection, 5 micrograms Ra: Each ampule contains radium chloride—Standard Chemical Co. (New and Non-official Remedies, 1924, p. 277), equivalent to 5 micrograms of radium element in physiological solution of sodium chloride, 2 c.c. Radium Chemical Co., Pittsburgh.

Standard Radium Solution for Intravenous Injection, 10 micrograms Ra: Each ampule contains radium chloride—Standard Chemical Co. (New and Non-official Remedies, 1924, p. 277), equivalent to 10 micrograms of radium element in physiological solution of sodium chloride, 2 c.c. Radium Chemical Co., Pittsburgh.

Standard Radium Solution for Intravenous Injection, 25 micrograms Ra: Each ampule contains radium chloride—Standard Chemical Co. (New and Non-official Remedies, 1924, p. 277), equivalent to 25 micrograms of radium element in physiological solution of sodium chloride, 2 c.c. Radium Chemical Co., Pittsburgh.

Iletin (Insulin—Lilly), U-10, 10 c.c.: Each c.c. contains 10 units of iletin (insulin—Lilly). (New and Non-official Remedies, 1924, p. 152). Eli Lilly and Co., Indianapolis, Ind.

Iletin (Insulin—Lilly), U-20, 10 c.c.: Each c.c. contains 20 units of iletin (insulin—Lilly). (New and Non-official Remedies, 1924, p. 152). Eli Lilly and Co., Indianapolis, Ind.

Iletin (Insulin—Lilly), U-40, 10 c.c.: Each c.c. contains 40 units of iletin (insulin—Lilly). (New and Non-official Remedies, 1924, p. 152). Eli Lilly and Co., Indianapolis, Ind.

Tincture Digitalis Purified (Fat Free)—S. and D.—A fat-free tincture of digitalis corresponding in strength to tincture of digitalis—U. S. P., containing 45 per cent. of alcohol. It is standardized by the one hour frog method of the U. S. Pharmacopoeia. The actions, uses and dosage are the same as that of tincture of digitalis U. S. P. Tincture digitalis purified (fat-free)—S. and D., was introduced at a time when the "fat" of digitalis was believed to cause gastric disturbances. At present this claim of superiority is not tenable and the preparation is sold simply as a standardized tincture of digitalis. Sharp and Dohme, Baltimore. (Jour. A. M. A., January 24, 1925, p. 285).

Antimony Sodium Thioglycollate.—A compound formed by dissolving antimony trioxide in a solution of a mixture of sodium thioglycollate and thioglycollic acid. It contains not less than 37 per cent of antimony. The actions and uses of antimony sodium thioglycollate are the same as those of antimony thioglycollamide, but it is more soluble and in higher doses appears to be less toxic. Hynson, Westcott and Dunning, Baltimore. (Jour. A. M. A., January 31, 1925, p. 369.)

PROPAGANDA FOR REFORM

Hoyt's Gluten Flakes Not Accepted for N. N. R.—Hoyt's Gluten Flakes is marketed by the Pure Gluten Food Co., New York, as a ready-to-eat gluten preparation. The claims are made that it is "A perfect gluten," that it contains "40 per cent. Protein," which is asserted to be the government standard for gluten, and that it is "free from starch." These statements of composition are misleading. A product containing 40 per cent. of protein is not a "perfect gluten" nor is 40 per cent the government standard for gluten flour, but the lowest limit of protein to which the term gluten flour may be applied without incurring danger of prosecution by the federal authorities. The Council on Pharmacy and Chemistry declared Hoyt's Gluten Flakes inadmissible to New and Non-official Remedies, because (1) its composition is not correctly declared, and (2) the claims for its effects on nutrition and health are unwarranted and misleading. (Jour. A. M. A., January 3, 1925, p. 53).

Restor Vin Not Accepted for N. N. R.—Restor Vin is the therapeutically suggestive name under which the Robinson-Pettet Co., Louisville, Ky., markets a mixture stated to have the following composition: solution of albuminate of iron, 8 pints, detannated wine of wild cherry 12 pints, glycerin 8 pints, elixir of calisaya 12 pints, tincture of hydrastis 1 pint, hypophosphorous acid 8 ounces, solution of saccharin 4 ounces, calcium glycerophosphate 1 ounce, water 16 ounces. The Council on Pharmacy and Chemistry found Restor Vin inadmissible to New and Non-official Remedies, because it is an unscientific mixture, marketed under a therapeutically suggestive name and with unwarranted therapeutic claims that may

lead the public to depend on this "cordial" in serious conditions. (Jour. A. M. A., January 3, 1925, p. 54.)

Leucotropin.—Leucotropin is a German proprie ary exploited by Morgenstern and Co., New York. It is to be administered intravenously. From the advertising it would appear that "Leucotropin" is a molecular combination of hexamethylenamin and cinchophen. It is most probable, therefore, that the product will merely have the effect of its two components. There is no warrant for the intravenous administration of hexamethylenamin, and it is difficult to believe that the intravenous use of cinchophen will give results materially different from those obtained when cinchophen is given by mouth. A letter has been sent out by Morgenstern and Co., which suggests that two doses will be sufficient to "judge the effects" of this German synthetic. This, of course, was an appeal to the uncritical. (Jour. A. M. A., January 3, 1925, p. 56).

Colodine and Colobromodine not accepted for N. N. R.—Colodine and Colobromodine are products of the Colloidal Laboratories, Philadelphia. They are stated to be the invention of Harry J. Novack, M. D., and the claims in the advertising are based on a publication by Dr. Novack. The nature and composition are not clearly stated; according to the label, they contain respectively, iodin and iodin and bromin in "colloidal form." From vague statements made, it may be concluded that Colodine is an iodin treated fat, the nature of which is kept secret and that it does not contain iodin in colloidal form. Colobromodine is stated to be prepared from Colodine by the addition of bromin. The claims and statements made in regard to Colodine appear to be governed by imagination rather than by observation. The claims cover all conditions for which iodin medication has been employed at various times—and some additional ones, some of which are not only unreasonable, but dangerous. The claims advanced for Colodine are extended to Colobromodine with the addition that from the latter may also be obtained "the sedative action of pure bromin." The Council on Pharmacy and Chemistry found Colodine and Colobromodine unacceptable for New and Non-official Remedies because (1) the statements made in regard to their chemical character are indefinite and misleading; (2) the statements of their pharmacologic and therapeutic action are misleading and unwarranted, and (3) the circular included with the trade package may lead to their ill-advised use by the public. When the Council sent its report to the Colloidal Laboratories, the firm submitted a reply in which it was promised that the circular would be revised to remove conflict with Rule 4 and submitted a proposed revision. The information failed to clear up the contradictory statements of composition (Rule 1), and still contains dangerously misleading therapeutic claims (Rule 6). (Jour. A. M. A., January 10, 1925, p. 135).

Somnos.—Somnos is marketed by the H. K. Mulford Co. It was investigated by the Council on Pharmacy and Chemistry in 1906. The committee that made the investigation was unable to find that Somnos was less toxic than hydrated chloral or that it had a less depressing effect on temperature, respiration or circulation. On the contrary, the physiological effects were indistinguishable from hydrated chloral. (Jour. A. M. A., January 10, 1925, p. 136).

Colon Bacillus Vaccine, Gonococcus Serum and Gonococcus Vaccine Omitted from N. N. R.—The Council on Pharmacy and Chemistry reports that all colon bacillus vaccines, gonococcus serums and gonococcus vaccines have been omitted from New and Non-official Remedies. The Council took this action because an examination of the existing evidence goes to show that these preparations are not of therapeutic value. (Jour. A. M. A., January 17, 1925, p. 220).

Loeflund's Food Maltose Not Accepted for N. N. R.—Loeflund's Food Maltose is claimed to be composed of dextrin 59.7 per cent., maltose 40 per cent and sodium chlorid 0.3 per cent. Since dextrin is the preponderating constituent of the product, the Council on Pharmacy and Chemistry holds it incorrectly named, and on this account ineligible for New and Non-official Remedies. (Jour. A. M. A., January 17, 1925, p. 220).

Sanocrysin, the Mollgaard Tuberculosis Remedy.—The first copies of a book by Mollgaard and his coworkers, describing experiments with sodium auric thiosulphate, for which the name "Sanocrysin" has been registered, have been received in the United States. The outstanding fact in connection with Sanocrysin is that it is only the name that is new. The salt is an old one and is now used in the arts. Mollgaard claims to have improved the process of preparation to remove toxic substances. But one is impressed with the fact that Mollgaard's preparation is dangerous unless its use is carefully supervised, especially in tuberculous animals or persons. Mollgaard claims to have rendered the dangers less serious by the use of serum from calves or horses previously infected with dead tubercle bacilli. While Mollgaard does not claim that the use of the serum takes any part in the cure which Sanocrysin is said to bring about, one cannot help feeling, when reading the results of his experiments that it is the conjunction of the two substances which effect whatever curative influence the treatment may have. The evidence for the value of this treatment in tuberculosis, however, is not convincing. In the United States the new treatment cannot be sold until it is licensed by the United States Public Health Service. This Service is carrying out experiments to determine if a license may be granted. Meanwhile the Council on Pharmacy and Chemistry will investigate and issue a preliminary report. In view of the dangers involved in the use of Sanocrysin, the best advice to those suffering from tuberculosis is to continue the well known and well tried methods of sanatorium treatment. (Jour. A. M. A., January 24, 1925, p. 287.)

Beto.—Beto is advertised as a "Blessing to Diabetics." Like most nostrums sold for the alleged cure of diabetes, Beto is featured as a product whose use makes it unnecessary for the diabetic to diet. When first put on the market, Beto was sold and advertised exclusively as a cure for diabetes. Later, it was recommended, in addition, for high blood pressure, "all kidney troubles" and dropsy. Beto comes in the form of tablets and sells at $5.00 per package. The A. M. A. Chemical Laboratory reports that the product may be considered to be composed of talc 3 per cent, magnesium sulphate U. S. P., 97 per cent, and oil of cinnamon, a trace. Each tablet was equivalent to approximately 7 gm. of Epsom salt, or one-half the dose given in the U. S. Pharmacopoeia. Thus the purchaser of Beto pays $5.00 for 1½ pounds of Epsom salt, which can be bought for 15 cents a pound. Beto is not a cure for diabetes and to sell Epsom salt under the claim that it is a cure and with the deadly dangerous advice that when taking it, it is unnecessary for the diabetic to diet, is an offense against business morals and a menace to the public health. (Jour. A. M. A., January 24, 1925, p. 304).

Colloidal Gold Not Accepted for N. N. R.—"Colloidal Gold" (Kahlenberg-Klaus Co.), is claimed to

have been developed by Professor Louis Kahlenberg, of the University of Wisconsin, and Dr. Edward H. Ochsner, of Chicago. The chief advertising matter is a circular which states that the remedy "Has proved to be far superior to X-ray and radium in the treatment of inoperable cases of cancer and also as post-operative treatment." The solution is claimed to contain one one-thousandth of one grain of pure gold in colloidal form in every ten drops. The remedy is sold in four-ounce bottles at $5.00 per bottle. Calculation shows that the value of the gold in a bottle is less than one cent. In response to a letter from the Council on Pharmacy and Chemistry, asking for evidence to substantiate the claims for the preparation, the manufacturer referred to an article by Dr. E. H. Ochsner. The article contains reports of four cases. In but one of the four cases was the diagnosis proved by miscoscopic examination and death from cancer indicates that the colloidal gold had no effect on the disease. In the other three cases there was no microscopic examination of the tumor. Every surgeon and pathologist of wide experience knows how misleading the gross appearance of tumors may at times be. It is almost inconceivable that a serious investigator of a method of treating cancer should have neglected such an obvious and simple means of controlling his work. Until more critically studied cases, supported by microscopic examination of the tissues, are reported, in which there has been definitely demonstrable retrogression or disappearance of the tumor, the Council on Pharmacy and Chemistry sees no reason for believing that "Colloidal Gold" offers anything more in the treatment of carcinoma than do the other colloidal preparations that have preceded it. The Council found "Colloidal Gold" inadmissible to New and Non-official Remedies because the claims advanced for it are unwarranted. (Jour. A. M. A., January 31, 1925, p. 387).

Correspondence

Notes on the Life and Work of Sir James Mackenzie.*

London, England,
January 26, 1925.

To the Readers:

I arrived in London yesterday, possessing letters of introduction to Sir Thomas Lewis and Sir James Mackenzie. I had completed a pleasant call upon Sir Thomas Lewis and was asking him for directions to Sir James Mackenzie's residence, at Albert Hall-Mansions, Kensington, when I was informed by Sir Thomas, with sorrowful tones, that Sir James had just died a few moments before.

Sir. James Mackenzie, M. D., F. R. S., F. R. C. P., LL.D., was a distinguished general practitioner who also was a heart specialist. Made famous in the annals of medicine by his pioneer work in the diseases of the heart, he refused to be only a heart specialist. He preferred to think deeper of the problems of medicine by applying his energies to the solution of problems of symptomatology. Although an interest in one group of symptoms emanating from or about the heart fixed his thought on this organ, and although his efforts to unravel some of the knotty problems connected with the symptomatology of the heart was the occasion of the development of a new group of heart conditions, Dr. Mackenzie never failed to hold fast to the broader significance of symptoms in general and never failed to take a wider view of symptoms than is taken by the average specialist. So, in the latter days of his life, he set himself apart to the task of attempting to evolve a system in medicine by which some conclusions may be arrived at in the domain of symptoms.

As a large proportion of the readers of the Virginia Medical Monthly may be said to be general practitioners, and as this distinguished man in medicine was a shining example of the possibility for increasing our knowledge in medicine, on the part of the general practitioner, I am sending some extracts from the *London Times*, of January 26, 1925, hoping that these may be of interest to physicians in Virginia.

Alexander G. Brown, Jr.,
Editor.

Extracts From London Times on Sir James Mackenzie.

Sir James Mackenzie, the heart specialist and pioneer of the "separate science" of medicine, died January 25, at Albert Hall-Mansions, Kensington, at the age of 71. Last August he had had to leave his work at the St. Andrews Institute for Clinical Research, which he had founded, and he intended to go abroad to a milder climate. Sir James, who was knighted in 1915, was consulting physician to the King in Scotland. His medical works have been translated into French, Italian, Danish, German, and Spanish. Last year he was awarded the Charles Mickle Fellowship prize at Toronto University for his work during the preceding ten years "to advance sound knowledge of a practical kind in medical art or science."

Sir James' life falls naturally into three parts: his early work as a general practitioner at Burnley, in Lancashire; his sudden leap to world fame as the greatest heart specialist of his day, perhaps of any other day, and his retirement to St. Andrews to devote the closing years of his life to research work and to the founding of an "institute" where his principles might be applied by general practitioners from one generation to another.

Mystery of Symptoms.

Mackenzie often told the story of his first encounters with disease. He came from his studies at Edinburgh to the hurly-burly of a big general practice, and within a few months discovered that he was singularly ill-equipped for the work he had un-

*This letter from our Editor was received the day after the February issue had gone to press. Because of its unusual interest, we are taking the liberty of publishing it now, although Dr. Brown returned home the middle of February.

dertaken. The mass of knowledge which he had accumulated was not the kind of knowledge which his daily work required.

At first he supposed that this lack was personal to himself, and so set about finding a remedy. He read vast numbers of medical works; he searched many libraries, but at the end, like Omar, "Came out by the same door" as in he went. Gradually there dawned upon him the truth that the knowledge he was seeking was not available. The leaders of his profession were engrossed in sciences other than the science of medicine: physics, chemistry, bacteriology, physiology, and so forth. Questions bearing a superficial appearance of the utmost simplicity found them dumb.

With that curious directness of mind which was his most outstanding quality, the young Mackenzie perceived almost at once where the fault lay. Every sick man has the same question to put to his doctor: "What does this symptom of which I complain mean so far as I am personally concerned?" To answer that question his doctor must possess a wide knowledge of the manner in which symptoms arise, of their "mechanism," of their evolution, and of their ultimate significance. Thus, what is called "prognosis," or medical prophecy, is the key to knowledge.

There suddenly burst on the young doctor the conviction that even that most commonplace of all symptoms, pain, was largely an unknown quantity. Lacking knowledge of the nature of pain, of its "mechanism," of its causes, of its effect, of its final significance, he realized that so far as he was concerned the symptom was "dumb." To the patient with a headache he must say:

I don't know what pain in the head means; I don't know how it arises; I don't know what parts of the head it affects; I don't even know what pain itself may be—how, then, can I express any opinion about your symptom? How can I make even a wild guess as to what your future prospects of health may be?

There is no doubt that this revelation of ignorance appalled Mackenzie. He never forgot the experiences of these early years, nor the extreme complacency of many of his colleagues in face of his own anxious inquiries. They believed that knowledge was approaching completion; he that it had scarcely begun to exist.

Diseases of the Heart.

He set his teeth and devised one of the most amazing pieces of research work which has ever been planned. This was nothing less than the "following up" of several thousand people (patients) for a period of not less than twenty years. If, he argued. I make exact notes of every symptom I detect in the course of my practice, and if I refresh these notes at each subsequent opportunity, in about twenty years I shall know, more or less, which symptoms are serious and which are trivial, and also what a symptom portends for its possessor.

He began to carry out his programme, and almost at once perceived that it was too much for him. So he resolved, there and then, to confine his attention to symptoms and signs of a particular kind—those usually assumed to bear a relationship to the heart and its diseases. For twenty years his labors were never relaxed. At the end of that time he was in possession of a body of knowledge which, when he published it in his famous book on diseases of the heart, a new edition of which is now in the press. took the medical world by storm. Here, indeed was a man who spoke with authority.

His book was soon translated into most of the European languages, and there sprang up what came to be known as "the new school of cardiology." Mackenzie himself had come to London and set up in consulting practice. He was well advanced in middle age, not very well known, and very far indeed from wealthy. Few men have dared so much. During these early London days, too, he suffered the grievous loss of one of his daughters, so that they remained in his memory as days of gloom and sorrow.

But that stout heart never quailed. The success of his book encouraged him, and the great kindness shown to him by Lord Knutsford, of which he never tired of speaking, gave him new strength. It stands to the credit of the distinguished Chairman of the London Hospital that he knew a genius when he saw him and went out of his way to give him help. Sir James was offered wards in the London Hospital with all the prestige which such a position carries. The London Hospital, thereafter, became a sharer in his triumphs.

Very briefly, he had devised a method of recording separately the action of the auricles and ventricles of the heart, and so had elucidated for the first time the various arrhythmias met with. Professional literature began to overflow with references to "extra-systoles," "heart-block," "nodal rhythm," and so forth. There gathered around the pioneer brilliant young men eager to help him in his great work.

A "school" was soon in existence which owned the Burnley practitioner as its "father." Mackenzie took a great interest in its development; but never. perhaps, really identified himself with it. Indeed there was infinite pathos in some of the things he said about the "exquisite scientific methods" of these. his own "children."

Not long before his death, Mackenzie wrote of himself characteristically to a friend:

My brain is unaffected, and I am having a fine old time reviewing all my past experiences, and am as happy as the day is long except when the pain (*angina pectoris*) comes on.

Then, in relation to his work:

It will come to be realized that the organs of the body are regulated by structure specially evolved for the purpose of conducting a peculiar form of energy called the impulse. The cells of the body have been specially evolved for the reception of this form of energy. The result of stimulation by the impulse is of a particular kind, being graded to suit the circumstances, purposive and effective. These conducting structures, nerves, etc., are not evolved for the conduction of electricity, nor are the cells of an organ made to respond to an electrical stimulus. Physiologists place the organ in artificial conditions, employ artificial stimulation, and obtain an artificial result. From such results they evolve the "law of all or nothing," because that always happens in response to electrical stimulation, the response being sudden, ungraded, and ineffective and purposeless; in striking contrast to the normal response. When this is realized, the whole of the physiological interpretation of the functional activities of organs will have to be scrapped. This is one of the results that I anticipate. Keep this in your mind twenty-five years hence.

Strong words perhaps. But the words of a strong man. Mackenzie's death leaves a gap which can never be filled. His personal friends know that they have lost the kindest and truest of mentors. For above all, he was a man large in sympathy, great in heart, and dauntless in courage.

Virginia Medical Monthly

FOUNDED BY LANDON B. EDWARDS, M. D., APRIL, 1874.
OWNED BY THE MEDICAL SOCIETY OF VIRGINIA.
PUBLISHED BY THE PUBLISHING COMMITTEE.

A. G. BROWN, Jr., M. D., Chairman, Richmond, Va.
B. R. TUCKER, M. D., Richmond, Va.
P. W. HOWLE, M. D., Richmond, Va.
E. L. KENDIG, M. D., Victoria, Va.
A. L. GRAY, M. D., Richmond, Va.
ALEX. G. BROWN, Jr., M. D., Editor.
AGNES V. EDWARDS, Business Manager and Secretary-Treasurer.

All correspondence regarding editorial matters, articles, advertisements, subscription rates, etc., should be addressed to the Journal.

All advertisements are received subject to the approval of the Council on Pharmacy and Chemistry of the American Medical Association.

Subscription Price: $2.00 per annum in advance.
Single Copies 20c.

Vol. 51 MARCH, 1925 No. 12

Editorial

The Question of Examination of Patients.

Changes have taken place so rapidly in the method of examining patients that it has become necessary to have a better understanding on the patient's part of the reasons and expense of modern medical examinations and on the physician's part as to what these examinations should include.

Many patients have an idea that to be thoroughly examined is unnecessary. However, we believe if they could see how many very definite defects are picked up during the course of these examinations that would otherwise be overlooked and watch the benefit to patients of their correction, they would be satisfied on this score.

In regard to expense they seem to fail to realize that the average complete examination is about as expensive as a new suit of clothes, and far more important, or that, if their means are limited, reductions are made, and that they can even be examined thoroughly without charge if they are not financially able to pay. A little time given by the physician in making these explanations both to the patient and family, and to any layman when the subject comes up, would be very helpful in their reaching an understanding. Also articles written for the lay press should explain these conditions.

From the standpoint of the physician the time has long since passed when he can look at the tongue, feel the pulse, give a proprietary medicine, take a small fee and be satisfied. Every patient applying to a physician deserves a complete examination. Routine inspection of the teeth and of the tonsils, routine Wassermanns, blood pressure readings, urinalyses, blood counts and other examinations have revealed serious conditions time and time again in patients who consulted a physician for some trivial matter. One difficulty lies in the selection of what examinations should be made in each case. It, of course, would be neither honest nor wise to put patients to unnecessary examination stunts. On the other hand, it would be unfair and unwise to leave out some examinations which might reveal something of importance, as for instance basal metabolism or gastric analysis, even though the indications were slight.

Patients do not like to go around and pay so many special fees for special examinations and at times it is better for the physician to whom the patient has been referred to collect these fees. Also it is unwise for those making special examinations to make high charges to patients who are undergoing a good many other examinations. Such technical and laboratory examinations as X-ray, cystoscopic, basal metabolism, electrocardiogram and routine and special laboratory work should be made accurately and carefully but at as low a rate as possible.

When the patient comes for general examination it is best that finances be talked over and that he be told what the approximate charge will be for all the examinations he is to undergo. If at the same time the necessity for these examinations is explained to him and he is told that the charges for the examinations will be made to suit his circumstances, much misunderstanding and difficulty will be obviated.

B. R. T.

The Question of Suicide.

It is absolutely surprising how little medical attention has been paid to the subject of suicide. One can hardly pick up the daily paper without reading of suicides and they form a considerable percentage of the general death rate.

The question is frequently asked whether a person who is of sound mind ever commits suicide. The answer is that sane people, not infrequently, do. In fact, suicide among certain people and in certain periods has been considered a rather heroic deed. Brutus and many other noble Romans committed suicide. Japanese and other Orientals will commit suicide rather than suffer defeat, and perfectly

sane women kill themselves rather than face disgrace. The same is true of men who kill themselves rather than face dishonor. On the other hand, suicide may be committed for purposes which are deemed unselfish, as for instance when a man kills himself so that his family may live upon his life insurance. People who suffer great pain, but whose mental state is not particularly upset, may rather die by their own hand than continue the physical suffering.

On the other hand, of course, many are insane when they commit suicide and it is particularly common in the depressed phase of manic-depressive insanity and may constitute an abnormal reaction to jealousy or unrequited love. Paranoiacs rarely kill themselves, unless they believe that they do so at the command of God, and, when so, they usually kill other members of the family along with themselves. In dementia praecox cases suicide is not uncommon.

The periods of life at which suicide is most common are during adolescence and around the period of change of life both in men and women.

The method used is, of course, very variable. As a rule, women don't blow their brains out or cut their throats because of the disfigurement, while this form of suicide is frequent among men. In Vienna, phosphorus, because of its accessibility at the government match factories, is a common means of self destruction. In this country bichloride, lysol and other drugs that may be easily obtained are frequently used. On the other hand, patients may go to extreme trouble to obtain some unusual drug.

There is a false impression that people who threaten or attempt suicide in a bizarre fashion will not commit suicide. Many instances are known in which this is not the case and a threat or bizarre attempt is always a serious indication of the possibility of self-destruction.

We can not discuss here, at length, the method of prevention of suicide but it is well to bear in mind that it is worth while to educate children to stand the "whips and slings of outrageous fortune," and to instill in them the idea that suicide, to avoid the responsibilities of life, is cowardly. Also we should protect all people mentally afflicted and those who have threatened suicide as far as possible until the danger is over and the heroic idea of suicide under any circumstances should be discouraged.

B. R. T.

Prevent Heart Trouble!

Under the term heart disease we include here diseases of the cardio-vascular system. By this one may mean diseases of the heart and arteries. This is an arbitrary inclusion, using editorial license, for the purpose of popularizing a medical subject before medical readers. This liberty is taken in an effort to present in an editorial column an important subject to our readers, a large proportion being general practitioners. Specialists also may take occasion to note the point under comment, because it is an incontrovertible fact, now, that diseases of the cardio-vascular system are increasing both in morbidity and mortality in America.

One reputable statistician, cited by Barnes,* has shown, from the insurance and other records, that in persons under twenty-five years of age, organic heart diseases now cause as many deaths as typhoid fever; in persons between the ages of twenty-five and thirty-five organic heart diseases cause as many deaths as lobar pneumonia; in persons over forty-five organic heart diseases cause more deaths than "any other disease." This increase of death-rate bespeaks an increase of incidence in this group of diseases. To quote again from Barnes, it was found that of the 3,764,000 men, passed by the local boards and sent to camp up to November, 1917, 500,000 were rejected and over 3 per cent of the draft men were rejected on account of heart disease. This item of evidence is taken from men of military age. Extreme youth, middle age, and old age do not enter into this. Other statistical proof might be presented to emphasize the increased morbidity and, also, the increased mortality in this group of diseases.

Young Hearts.—The association of heart maladies with acute infections of the tonsils, with articular rheumatism, and with other acute infections of the body, during the early period of life, has become a recognized clinical fact. But it is probable that after-effects of this association have been too lightly considered by medical practitioners. The damaged heart has been permitted too often to return to full duty before it has recovered from acute infection of the valvular mechanism, to say nothing of the development of compensatory myocardial structure. So, if youth escapes

*Barnes, Annals of Clinical Medicine, Vol. II, No. 3, pg. 163.

death from acute endocarditis, it may go forward with a regurgitant or obstructed valvular orifice. Full and unrestricted action before adequate training has been given the heart muscle, may mean early death by decompensation.

Young hearts, when diseased, suffer inflammatory damage most frequently in the left endocardium. This valvular and mural endothelium is the selected site of bacterial implantation and destructive pathology. The mitral orifice, with its valvular structure and attachments, is the favorite place of infection. From infancy through childhood and the "teens," tonsillitis and acute rheumatic arthritis serve as a means of implanting heart disease at this point in heart structure. Infancy, childhood and youth suffer in this way a cardiac blight. The mitral endocardium particularly appears to afford favorable breeding ground for the malignant family of streptococcus. The course of throat or mouth infection, the evolution of acute rheumatic arthritis, the progressive stages of acute exanthematous diseases present the time and opportunity to the "strep" for nefarious attacks upon the endothelium lining the left heart. Practitioners today may wisely think of left cardiac endocardium in all cases of acute tonsillitis, acute rheumatic arthritis, and other acute infectious processes in early life. Examination and prolonged observation of the action of the heart at and following these diseases are extremely important. Here, inspection and auscultation and careful thinking on the part of practitioners perform a most useful service in the prevention of chronic valvular heart disease and in the cure of acute endocarditis. Slight structural change in any case may result, but with growth of the heart and growth of the body, mechanical defects may be overcome or rendered less harmful. The heart, in all acute infections of childhood and youth, should always have a foremost consideration in the plan of treatment. Before one may feel sure of securing a cure of acute infections of this period of life, the heart should be adjudged as either cured or unaffected. This judgment of the integrity of the heart in association or following a course of acute infection may be safely reached without elaborate or highly specialized instruments. No electrocardiographic or polygraphic or Roentgenographic studies may be needed for this determination. With a watch and stethoscope and an understanding of the normal heart sounds, and the usual physical signs of beginning valvular disease, one may usually arrive at a safe judgment.

Old Hearts.—Hearts forty-five years old may be considered, for our purposes, with the vascular system as one organ. Years of cardiac systoles and diastoles write the story of unremitting cardio-vascular work. Toxins, whether metabolic, chemical, bacterial or other, separately or combined, produce cardio-vascular disease. These harmful agents act upon the heart and arterial system directly and indirectly. The myocardium and the arterio-capillary system are directly injured by them. Through the vegetative nervous system and glands of internal secretion also, indirectly, cardio-vascular diseases arise. Were hearts rarely affected in youth and permitted to come to maturity free from the chronic valvular defects, following acute infections of early life, there is enough in the fifth decade, as modern life goes, to cause the increase of heart trouble, also reasons for sudden death, so commonly experienced in late years. The daily inhalations of fumes of tobacco, the habit of drinking tea and coffee excessively (caffeine), the daily use of an excessive diet, probably illy balanced and administered to the weary stomach, may be a group of causes in producing cardio-vascular disease in the fifth decade. The influences of chronic-infection-foci in the mouth, teeth, throat, gall-bladder, urinary system, or the disorders of hyperthyroidism and retention of urinary solids from chronic nephritis serve to effect serious damage in the heart and arterial system at this period of life.

Hypertension and myocardial damage usually proceed together at this time. In the beginning the myocardium develops compensatory structural changes and in the terminal stages it loses force and reserve power. Myocardial damage in the old heart displays itself in a number of ways. The heart damage is shown by sinus arrhythmia, by premature and incomplete systoles, by paroxysmal rapid action, by heart block, by auricle fibrillation or flutter, by anginal attacks, by a sense of precordial distress and dyspnoea, or by sings of "acute indigestion' alone. Especially is the frequency of cardio-vascular disease of advanced life noted in the lay press by the fatalities from sudden death from so-called "acute indigestion." The modern methods of life seem to make for an increase of this type of disease with this fallacious explanation.

Finally, increased blood pressure, chronic infections, abusive habits of diet, and the strenuous life combine to increase heart disease. It is seen not only in business men and obese women, but it is seen among the members of our profession itself. Should not the members of the profession themselves at fifty submit their daily habits and imperfections of the body to a careful study, with a view to the correction of improper habits and for the elimination of foci of infection which may be combining to bring too early heart failure?

A. G. B.

News Notes

Important Notice!

At the Staunton meeting of the Medical Society of Virginia, a recommendation was made that the Virginia State Board of Medical Examiners call the attention of all to whom certificates might be issued to the requirement of the law touching registration.

In regard to this request, Dr. J. W. Preston, Roanoke, secretary of the State Board of Medical Examiners, writes:

"While our folders of information have always contained instructions to those to whom certificates were granted relative to registration, in order that the importance of registration be impressed upon each individual licensed, we have had a leaflet printed in which the law is quoted, and are attaching one of these leaflets to each certificate issued.

"It having developed that in all probability a great many of the older practitioners have neglected to register their certificates, in Richmond particularly, where there is a city ordinance in addition to the State law governing the matter, and since this doubtless holds good for all parts of the State, it has occurred to me that it might be an excellent plan to print a copy of the leaflet in some issue of the Journal between now and the time of licensure, May 1st."

This leaflet is as follows:

IMPORTANT NOTICE!

Attention of all to whom certificates may be granted is called to Section 1612 of Statute, which reads in part as follows:

"Every certificate to practice medicine granted under the provisions of this chapter shall, before the licensee begins to practice thereunder, be presented by him to the Clerk of the Circuit Court of the county or the Corporation Court of the city wherein such practice is to be carried on. The clerk of each of said courts shall keep a book for the purpose, entitled the "Medical Register," and set apart one full page therein for the registration of each licensee, and he shall record therein the name, residence, place and date of birth and source, number and date of the license to practice, and the school of practice to which each licensee professes to belong, and each licensee shall subscribe and verify under oath the matters above mentioned when the same have been so recorded, which if wilfully false, shall subject the person so making oath to conviction and punishment for false swearing as provided by law."

Any practice done for compensation prior to registration of certificate in accordance with the above is illegal.

Since the adoption of the Medical Practice Act, of 1916, the law has required that all who practice in Virginia must register their certificates prior to beginning practice. Dr. Preston writes further: "That many practitioners failed to register in accordance with the law has been brought out by the fact that Norfolk, Newport News and Richmond have passed ordinances making it obligatory upon Commissioners of Revenue to investigate relative to the registration of certificates prior to issuing licenses, and, for this reason, those who have neglected to register will be unable, in the cities mentioned, to obtain a renewal of license until they have complied with the law.

"As it is probable that a great many practitioners in different parts of the State have overlooked the enactment mentioned, or for other reasons have failed to register, I have thought that calling attention to the matter at this time might be of service to them."

It would be well for all of our readers to comply with this ordinance.

The Wise County Medical Society,

At is annual meeting held February 25th, elected Dr. E. P. Cox, Norton, Va., president, and re-elected Dr. C. B. Bowyer, Stonega, Va., secretary-treasurer.

The Botetourt County Medical Society,

At its annual meeting, elected Dr. R. T. Givens, of Glen Wilton, president, and Dr. W. N. Breckinridge, of Fincastle, secretary.

The Augusta County Medical Association

Held its regular quarterly meeting in Staunton, February 4. The attendance was good and several interesting papers were read. Dr. David T. Gochenour, Stuarts Draft, is president, and Dr. H. G. Middlekauff, Weyers Cave, secretary.

Recreation a Necessity for Mental and Moral Health.

Dr. Charles A. L. Reed, a former president of the American Medical Association, makes

the above statement, and this forcibly brings to mind the old adages, "All work and no play makes Jack a dull boy," and "Satan always finds some work for idle hands to do." Facts collected by the Playground and Recreation Association of America confirm the truth of Dr. Reed's statement. Among these are noted the statements that:

Of 800 girls charged with delinquency in one large city of the United States during one year, over 500 attributed their missteps to loneliness and a lack of something to do.

There are more young men in our prisons and correctional institutions than in our colleges and vocational schools.

In St. Paul, Minn., it was found that most of the delinquent children appearing in the juvenile court came from a certain congested district of the city. A social center was opened there, and, in a year, delinquency was reported decreased 50 per cent.

With supervision, there have been found many more children on the playgrounds than when there was no supervision.

As a prevention of juvenile delinquency, Warden Lewis E. Lawes, of Sing Sing, urges the wider extension of community system activities, such as the establishment of more playgrounds, especially in the congested districts; the establishment of community centers to provide opportunities for clean and wholesome recreation; the extension of the Boy and Girl Scout movement, and the interest of adult organizations in the children of today.

The Southwestern Virginia Medical Society

Will hold its next regular meeting at Pulaski, March the 26th and 27th, under the presidency of Dr. F. H. Smith, of Abingdon. Invited guests include Drs. Stuart McGuire, Emory Hill and C. C. Coleman, of Richmond. "Diseases of the Heart" is the subject which has been selected for discussion by Dr. R. A. Morrison, Abingdon, Dr. J. W. Preston, Roanoke, and Dr. A. B. Greiner, Rural Retreat. Voluntary papers will be read by a number of other members. Dr. E. G. Gill, Roanoke, is secretary-treasurer of this Society.

Colonel Micajah Boland,

Medical Director, Gendarmerie d'Haiti, has returned to Port au Prince, after an inspection trip throughout the North of Haiti.

Dr. Hunter H. McGuire,

Winchester, president of the Medical Society of Virginia, left the middle of February for Philadelphia where he expected to do some special work at the University of Pennsylvania. He will be home early in March.

Dr. John Staige Davis,

Of the medical faculty of the University of Virginia, gave a talk on "Reminiscences and Anecdotes of the University," at the monthly dinner of the Richmond Chapter of the University of Virginia Alumni Association on February 26.

Dr. John W. Brodnax,

Coroner of South Richmond and well known as anatomist and artist, delivered a lecture at the Richmond Public Library, February 27, on the subject, "Art as Applied to Anatomy." He was introduced by Dr. Mary B. Baughman, a former pupil.

Dr. William F. Drewry,

City manager of Petersburg, Va., has been appointed by Governor Trinkle as a member of the State Board of Public Welfare for a term of four years. This board is composed of five persons and conducts a general supervision of public welfare work in the State.

Dr. E. R. Miller,

Harrisonburg, Va., was a recent visitor in Richmond, having come here to attend a meeting of the educational committee of the Virginia Sunday School Association.

Dr. and Mrs. E. Howe Miller,

Danville, Va., were recent visitors in New York City.

Dr. J. C. Bodow

Has returned to his home in Hopewell, Va., after being a patient at St. Luke's Hospital, Richmond.

Visit Florida.

Drs. L. A. Robertson and S. E. Hughes, Danville, are among the Virginia doctors who have been spending sometime in Florida.

Louisiana Demands Certificate of Health Before Marriage.

At the last meeting of its legislature, the law makers of Louisiana passed a bill making it compulsory for any male applying for a marriage license to obtain from a licensed physician a certificate showing that he is free from venereal or other constitutional disease. Such legislation seems to be gaining favor steadily since the war, as a measure to prevent infection of innocent wives and unborn children. Among the states which have adopted various

modifications of this law are: North Carolina, Oklahoma, Pennsylvania, Indiana, Michigan, Oregon, Alabama, Wisconsin and Utah.

Hospital Superintendent Resigns.

Mrs. M. G. Payne has resigned as superintendent of the Lynchburg Hospital, Lynchburg, Va., and Miss Florence R. Wells, of the Virginia Baptist Hospital staff, was appointed to fill the vacancy.

Dr. G. G. Painter,

Pulaski, Va., has been visiting his son at Covesville, Va.

Dr. G. F. Simpson,

Purcellville, Va., was called to Boston, Mass., early last month, on account of the sudden illness of his wife who was visiting in that city. Dr. Simpson remained in Boston until she was able to return home.

The Medical Society of the State of North Carolina

Will hold its seventy-second annual meeting at Pinehurst, April 28-30, inclusive. Dr. Albert Anderson, Raleigh, is president and Dr. L. B. McBrayer, Southern Pines, is secretary-treasurer.

Dr. Garnett Nelson, Richmond, has been appointed a delegate from the Medical Society of Virginia to this meeting.

Dr. H. Taylor Hawkins,

Clover, Va., visited his parents in Richmond, Va., in February, at which time he also attended the meeting of the Grand Lodge of Masons in this city.

Dr. and Mrs. J. Kirk Richardson,

Richmond, enjoyed a short vacation in Washington in February.

Large Shipment of Quinine to Greece.

Probably the largest drug shipment ever to leave an American port, consisting of 14,000,000 five-grain quinine tablets shortly will be on its way to Greece. It will be used to combat the scourge of malaria existing in the great refugee camps of that country. National Headquarters of the American Red Cross today appropriated $85,000 for the purchase of this record shipment, which will weigh many tons. It is the last of a series of shipments made by the Red Cross to relieve widespread malaria outbreaks in the congested refugee camps.

The repatriation of nearly 1,000,000 Greek nationals from Asia Minor unavoidably resulted in many of these being quartered in malaria country. The result was a scourge as dreaded as that of typhus. The liberal distribution of the quinine shipments of the American Red Cross has, according to the Greek Depart of Hygiene, saved the lives of tens of thousands of the refugeees and enabled countless others, who otherwise would have been unable to work, to re-establish themselves in their new homes.

Dr. W. W. Chaffin,

Pulaski, Va., ex-president of the State Society, who was prevented by illness from presiding at the last meeting of the Society in Staunton, has been a recent visitor in Richmond. He is now much improved and has taken up some of his professional work.

Dr. Thomas W. Dew,

Fredericksburg, Va., was elected chairman of the Spotsylvania County School Board, at its meeting in February.

Medical Inspector, Richmond Bureau of Health.

Dr. Leta J. White, who graduated from Medical College of Virginia in 1923 and served a year as interne at Memorial Hospital, Richmond, has been appointed Medical Inspector with the Bureau of Health of this city. She succeds Dr. H. O. Bell, resigned, who is now doing post-graduate work in obstetrics at the New York Nursery and Child's Hospital.

Dr. A. T. Finch,

Chase City Va., was a visitor in Richmond last month.

Married.

Dr. Clyde F. Ridge, formerly of Edgar, N. C., but now of Thurmond, W. Va., and Miss Gladys Moody, Richmond, Va., February 18. Dr. Ridge is an alumnus of the Medical College of Virginia, having graduated in 1922.

Dr. and Mrs. H. Wallace Blanton,

Richmond, spent sometime in February, visiting in New York.

Members of Committee of the Gorgas Memorial Institute.

Drs. Paul V. Anderson, Robert C. Bryan, William T. Graham, Stuart McGuire, Garnett Nelson, Charles R. Robins, Beverley R. Tucker, Douglas Vanderhoof and Robert H. Wright are Richmond doctors who have been named on the Virginia Committee of the Gorgas Memorial Institute. Many men of prominence in the medical and business world are identified with this movement, which was started as a memorial to the late Gen. William

C. Gorgas, and has as its aim a nation-wide campaign of health education.

Dr. Carroll H. Fowlkes,

Richmond, is on an ocean cruise of several weeks, during which time he will visit Panama, some points in South America, Cuba and Florida.

Dr. and Mrs. J. N. Barney,

Fredericksburg, Va., were called to Woodstock, Va., the middle of February on account of the illness of Mrs. Barney's mother.

The Virginia Public Health Association

Held its annual conference in Richmond February 23 and 24, with a large attendance of health workers from all over the State. Interesting papers were read by U. S. Public Health Service men, Dr. Watson Rankin, chief health officer of North Carolina, and by a number of Virginia health officers. Dr. L. J. Roper, Portsmouth, was elected president; Dr. W. R. Culbertson, Norton, and Miss Anne Gulley, of Loudoun County, vice-presidents; Dr. L. L. Williams, Richmond, secretary-treasurer, and Miss Blanche Webb, Richmond, assistant secretary-treasurer.

Dr. Austen Micklem,

Who has been located for some years at Schuyler, Va., announces that his post-office is now Alberene, Va.

Dr. John M. Bailey,

Richmond, who graduated from Medical College of Virginia last year, has located at Faraday, Va. Since last summer he has been one of the internes at Jefferson Hospital, Roanoke, Va.

Last Call for Federal Income Tax!

Time has arrived for the last reporting and the first payments on Federal income taxes for the year ending December 31, 1924. Single persons who had net incomes of $1,000 or more and married persons who had net incomes of $2,500 or more, during 1924, should get in touch at once with the collector of internal revenue for districts in which they live or have their principal place of business, if reports have not already been made. Reports are necessary even if exemptions relieve one from the payment of a tax.

Orthopedic Department at Halcyon Hospital.

Dr. H. S. Belt announces the organization of an orthopedic department at Halcyon Hospital, South Boston, Va. This will be in charge of Dr. John Blair Fitts and Dr. Thomas Wheeldon, of Richmond.

Dr. Wheeldon, who has been conducting the free orthopedic clinic, sponsored by the Kiwanis Club, at South Boston, will be at the Halcyon Hospital on the fourth Friday of each month to see private cases. The free clinic will be held on the following day.

Stringent Health Rule Enforced by Utah City.

According to *Venereal Disease Information*, the Salt Lake City authorities have been making a systematic effort to quarantine all men and women found under circumstances which give rise to a reasonable suspicion that they have a venereal disease. Under this rule, any situation which will warrant a reasonable inference that the persons are engaged in prostitution or promiscuity provides legal sanction for compelling an examination, and, if an infection is shown, to establish a quarantine and enforce treatment. Both men and women are subject to the working of the measure.

This rule was recently put into effect by the board of health of Salt Lake City acting in co-operation with the Utah State board of health.

Dr. George H. Thomas,

Recently of Staunton, Va., has accepted appointment as a medical examiner for the U. S. Veterans' Regional Office at Richmond, and is now located with the Bureau at Third and Grace Streets, this city.

The Sheltering Arms Hospital,

Richmond, Va., celebrated its thirty-sixth anniversary on February 13th, with appropriate exercises and a public reception at which light refreshments were served. This hospital is operated as a charitable organization, no charge being made patients for any purpose whatsoever. It is supported almost entirely by private subscriptions and the King's Daughters. During 1924, there were 1,073 patients who received 17,097 days of treatment. The cost per day for a patient was $1.92. Total expenditures for the year were $31,102.51.

Why Charge Patients Any Way?

A doctor visiting the office the other day showed us the following letter. It seemed so typical of problems which arise in every doctor's work, sooner or later, that we asked the privilege of publishing it, that the "other fellow" might have a laugh at the expense of

his brother in misfortune. Names are withheld out of courtesy to those who have hard luck.

"Dear Dr.:

I thought I would write you in regard to the little I owe you on my little boy's operation. I am in a rite hard place, my family have been sick so much, my wife is in a bad condition. I sent her to Roanoke for Radium treatment. Dr. says she has to go back. She has about a dozen other troubles, so I don't see any chance of raising any money. If you will give me what I owe you I certainly will be olige to you for it. I have so many bills on me rite now till I have the blues. The amount I owe you is $26, so if you will marke it off I certainly will appreciate your kindness let me know at once.

yours truly."

And the doctor who received this letter did "even as you and I."

Dr. Beverley R. Tucker

Was unanimously re-elected president of the Westmoreland Club, Richmond, at its annual meeting in February.

Addition to be Made to Piedmont Sanatorium.

Contract has been awarded for the erection of an addition to Piedmont Sanatorium, at Burkeville, Va. The increased number of patients applying for treatment at this institution made the addition a necessity.

The American Association for the Study of Goiter,

At its annual meeting the latter part of January, elected Dr. Edward G. Blair, Kansas City, Mo., president, and Dr. Judson D. Moschelle, Indianapolis, secretary.

Work Started on Danville Hospital.

Ground was broken a month ago for the new Memorial Hospital to be built in Danville, Va. It is understood that the building will cost $250,000 and it is planned to have it finished within a year.

Accept Certificates of the National Board of Medical Examiners.

Dr. J. S. Rodman, Secretary of the National Board of Medical Examiners, announces that Michigan, Oklahoma, and Wyoming have been added to the list of states which will accept its certificate as qualifying physicians to practice medicine in those states. This makes a total of thirty-one states which now recognize the Board's certificate granted to candidates passing its uniform qualifying examinations, in addition to the territory of Porto Rico, the Military Reservation of the Canal Zone, and England and Scotland. The states are as follows: Alabama, Arizona, Colorado, Delaware, Georgia, Idaho, Illinois, Iowa, Kentucky, Maine, Massachusetts, Maryland, Michigan, Minnesota, Mississippi, Nebraska, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Oklahoma, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Vermont, Virginia, Washington and Wyoming. In ten other states favorable legislation is now pending and it is expected that eventually the certificate granted by the Board will be good in all parts of the country.

Surgeon-General M. W. Ireland is president of the National Board, and Everett S. Elwood, of Philadelphia, is managing director.

Crippled Children in North Carolina.

North Carolina has made a census of its crippled children, finding 700 in the State, and is establishing local clinics to help those who live in rural districts, often far from hospitals and a long distance from good roads or railroads.

"Eugenic Marriage Law" in Wisconsin.

Wisconsin's so-called "Eugenic Marriage Law," passed in 1913, is believed to have had good results, according to a recent report by the Russell Sage Foundation. The law provides that every man must have a physisian's certificate showing him free from social diseases in order to receive a marriage license. The Russell Sage Foundation secured the opinions of Wisconsin physicians about the law and found that the majority favored it and that, in spite of the small fee allowed for the examination, most physicians conscientiously examined every applicant. The law has had marked educational value, it is reported.

Venereal Diseases Reported in 1924.

An increase in the number of cases of venereal disease reported in the United States in the year which ended June 30, 1924, over the number reported in the previous corresponding year is disclosed by the figures recently made public in the annual report of the Division of Venereal Diseases of the United States Public Health Service. The report indicates that the increase in the fiscal year 1924 amounts to 27,382 cases, or 7.2 per cent. A total of 363,063 cases of venereal diseases were reported to the various state boards of health from all sources. The increase shown in this report does not necessarily mean that venereal disease was any more prevalent in the United States last year than in the year before, but may be accounted for by the increased efficiency in detecting these maladies and by more conscien-

tions reporting of cases on the part of private physicians.

The menace of venereal disease is being fought by the U. S. Public Health Service and the various State boards of health acting in co-operation with municipal health officers. These governmental agencies are trying to impress upon parents, teachers, young people and others the need of wholesome sex education, of prompt medical attention and the necessity for the passage of modern health ordinances and legislation.

Annual Report of St. Elizabeth's Hospital, Richmond, Va.

The annual report of this hospital for its thirteenth year shows the following interesting facts for the year ending December 31, 1924.

In January, 1924 a training school for nurses was established and the hospital was incorporated. There were fifteen articles publised by members of the staff during 1924 and one book; the book is the second edition of Horsley's "Operative Surgery" published by C. V. Mosby Co., St. Louis.

The statistics show an increase in the number of operations and in the number of patients and a decrease in the mortality per cent as compared with the report of 1923.

There were 845 operations, 145 cystoscopies, and a total number of 964 patients. This includes only patients admitted to the hospital and not out-patients. Of the 964 patients, twenty-two died, making a general hospital mortality of 2.2 per cent. The operative mortality was 2.8 per cent (two patients dying within twenty-eight hours after admission); the medical mortality was .6 per cent (premature baby died three hours after delivery); the urological was 1.3 per cent, and there was no obstetrical mortality.

There were 1,021 anesthesias—491 local, 423 Ethylene-Oxygen, fifty-four Ether, forty Ethylene-Oxygen and Ether, thirteen Ethylene-Oxygen and local.

The following are some interesting statistical points picked at random from the full report: Twenty-two direct transfusions of blood; seventeen breast amputations (eight of these radical for malignancy) with no deaths; thirteen thyroidectomies (six with hyperthyroidism) with no deaths; nineteen fractures (one death from multiple fractures of skull); ten hysterectomies (two deaths); two Caesarean sections with no deaths; twenty-six inguinal herniotomies (one strangulated) with no deaths; six resections of the large bowel for malignancy (one death in an advanced diabetic); six pylorectomies with no deaths; six posterior gastro-enterostomies (two deaths); eight Horsley pyloroplasties with no deaths; twenty-eight cholecystectomies (one death from pulmonary embolism); thirteen surgical drainages of gall-bladder and bile ducts with no deaths.

Miss Elizabeth Buxton,

Daughter of Dr. and Mrs. J. T. Buxton, of Newport News, Va., has just returned to her home in that city, after completing the nurses' training course at the Peter Bent Brigham Hospital, Boston, Mass.

Children's Memorial Clinic.

This clinic has been operating in Richmond since early last August, under the auspices of all of the children's welfare agencies of Richmond—about twelve in number. Althoug yet in its infancy, this clinic is accomplishing excellent work. Dr. Basil Jones, of Richmond, has been connected with the clinic as medical director, since the opening day. Dr. George H. Preston, an alumnus of Johns Hopkins, has recently come to the Clinic from Gracewood Training School of Georgia, and has charge of the psychiatric work. Several assistants work in conjunction with these two doctors.

Dr. and Mrs. William R. Aylett,

Who have made their home in Newport News, Va., for a number of years, left early in February for Tappahannock, Va., and will live at their farm near that place, Dr. Aylett having retired from active practice. Prior to leaving Newport News, Dr. Aylett was tendered a farewell dinner to which were invited a number of his professional friends. Several of these, in "after-dinner" talks, spoke of what Dr. Aylett had done for Newport News as a citizen and a doctor, he having been responsible for the opening of the first hospital in that city, now known as Riverside Hospital. It was stated also that Dr. Aylett was the discoverer of the transmission of disease by the agency of the common house-fly, his discovery antedating that of Dr. Walter Reed by two years. It is worthy of note that Dr. Aylett published an article on this subject in the *Virginia Medical Semi-Monthly* in June, 1896, while connected with the staff of the Eastern State Hospital at Williamsburg, Va.

The National Committee for Mental Hygiene

Has added two new medical members to its

staff: Dr. George K. Pratt, as Assistant to the Medical Director; and Dr. Ralph P. Truitt, as Director of the Division on the Prevention of Delinquency, to succeed Dr. Victor V. Anderson, resigned.

Dr. Pratt was for the last three years Medical Director of the Massachusetts Society for Mental Hygiene. Dr. Truitt was formerly Medical Director of the Illinois Society for Mental Hygiene, and during 1924 directed the National Committee's Child Guidance Demonstration Clinic at Los Angeles, California.

Dr. Willard G. Rainey,

Who served an internship at St. Elizabeth's Hospital, this city, in 1923 and 1924, recently visited friends in this city. Dr. Rainey is now an instructor in pathology in the Medical Department of the University of Virginia.

The Tri-State Medical Association of the Carolinas and Virginia

Held its twenty-seventh annual session in Richmond, February 18 and 19, with an attendance of about 250. Dr. F. H. McLeod, of Florence, S. C., presided. Social features were eliminated and a splendid scientific meeting was had. On Wednesday evening, the 18th, addresses were given by the three invited guests, Dr. William S. Thayer, of Johns Hopkins University, Baltimore, Dr. John A. Hartwell, of the Cornell Medical Faculty, New York, and by Dr. Wade H. Brown, of the Rockefeller Institute, New York. For this occasion, the auditorium in which the meetings was held was crowded.

Fayetteville, N. C., was selected as the next place of meeting and the following officers were elected: President, Dr. W. Lowndes Peple, Richmond; vice-presidents, Drs. R. L. Payne, Norfolk, Va.; John T. Burrus, High Point, N. C.; and Robert P. Finney, Gaffney, S. C.; secretary-treasurer, Dr. James K. Hall (re-elected), Richmond, Va. New councilors are Drs. H. S. Belt, South Boston, Va.; William Allan, Charlotte, N. C.; and Z. G. Smith, Marion, S. C. The councilors holding over are Drs. F. M. Hodges, Richmond, Va.; D. A. Stanton, High Point, N. C.; W. R. Wallace, Chester, S. C.; William B. Porter, Roanoke, Va.; E. S. Boice, Rocky Mount, N. C.; and F. B. Johnson, Charleston, S. C.

Dr. Thomas M. Barber,

Who graduated from the Medical College of Virginia in 1917 and immediately entered the medical service of the World War, has located in Charleston, West Virginia, with offices in the Kanawha Banking and Trust Building. Dr. Barber has spent several years working in hospitals of Boston, Mass.

Dr. H. M. Miles,

Of Norton, Va., is spending a few weeks in New York City, where he is doing post-graduate work in eye, ear, nose and throat work at the New York Polyclinic. He will return to Norton upon completion of the course.

Dr. E. H. Lewis,

Of Gordonsville, Va., is spending sometime in Alexandria, Va.

Shrine Hospitals Open New Unit.

On February 21st, the eleventh of the Shrine Hospitals for crippled children with a capacity of fifty beds, was opened at Springfield, Mass. The Shriners' hospitals have grown in three years from fifty beds in one hospital to 500 in the chain of hospitals, and others are yet to be built. No charge is made in any of these hospitals for hospital care or operations, and they are open to little cripples whose parents are unable to pay, without restriction as to color, race or creed. Shriners support these hospitals by an annual assesment of $2 a year per member. These hospitals are now in operation in St. Louis, San Francisco, Portland Ore., Minneapolis-St. Paul, Shreveport, Montreal, Springfield, Mass., Winnipeg, Salt Lake City, Spokane, and Honolulu.

Dr. Thomas J. Kagey,

Newport News, Va., suffered a stroke of apoplexy, February 25, while playing golf, and was reported as being in a critical condition, at the time we went to press.

Dr. W. James Marquis,

Who served an internship at St. Elizabeth's Hospital, Richmond, in 1922-23, recently visited Richmond. Since completing his internship here, Dr. Marquis has been a Fellow in Radiology at the Mayo Clinic.

The American Psychiatric Association

Will hold its eighty-first annual session in Richmond, Va., May 12-15, with headquarters at Jefferson Hotel. President of the Association is Dr. William A. White, of St. Elizabeth's Hospital, Washingtonn, D. C., and the secretary is Dr. Earl D. Bond, of 4401 Market Street, Philadelphia, Pa. Dr. James K. Hall, of Westbrook Sanatorium, Richmond, is chairman of the local committee of arrangements. One day will be spent in visiting Williamsburg,

Jamestown, Yorktown and the points of interest in that section. As a matter of note, it may be stated that the Eastern State Hospital, at Williamsburg, is the oldest State hospital for insane in North America.

The William Holland Wilmer Foundation.

Dr. Goodnow, president of Johns Hopkins University, announces that contributions totaling $1,500,000 have been secured to meet the pledge of the Rockefeller Foundation for an equal amount, for the establishment of a teaching hospital and research institute for diseases of the eye at Johns Hopkins. This will be under direction of Dr. William H. Wilmer, of Washington, D. C., whose name it bears. The hospital will have sixty beds, two-thirds of which will be for patients unable to pay all or part of the cost of treatment.

Dr. Wilmer has been appointed professor of ophthalmology in the medical school at Johns Hopkins. It is hoped that he will be able to take up his work in Baltimore next September.

Sight-Saving Classes Necessary in Schools.

In an address given last month before the National Education Association, Lewis H. Carris, managing director of the National Committee for the Prevention of Blindness, urged the necessity of sight-saving classes in public schools. He stated that there were at least 50,000 children with such seriously defective vision that they were unable to keep up with the work of normally sighted children. According to Mr. Carris, approximately 12½ per cent of the school children of the United States have defective vision to a degree which constitutes an educational handicap. In view of this, he suggests that vision tests should be made in connection with physical examinations of school children and that an adequate state law should be made to promote eye examinations in public schools.

U. S. Army Almanac.

A copy of this almanac, sent our office, is attractively gotten up by the Recruiting Publicity Bureau of the U. S. Army, at Governor's Island, N. Y. In addition to the regular almanac information, it gives many interesting facts concerning the different branches of the Army and lists over five hundred historical events concerning the U. S. Army.

Virginia War History in Newspaper Clippings

Has just been published in a limited edition by the Virginia War History Commission, of which Mr. Arthur Kyle Davis, of Petersburg, is chairman. As "the newspapers in Virginia, as in other States, put on khaki with the doughboys," this volume may be expected to cover this history as no other medium can. This presentation gives a history of Virginia and its people in the World War which should be interesting and accurate as to detail, and withal, replete with the patriotism which imbued us all.

Orders for this volume should be sent at once to the Publication Department of the Commission. Price of the volume bound in cloth is $2.00 and in paper $1.50.

Dr. William E. Warren,

Williamston, N. C., has been re-elected county physician of Martin County, N. C.

Civil Service Examinations.

The U. S. Civil Service Commission, Washington, D. C., announces open competitive examinations for the following positions, applications to be rated as received until June 30, 1925:

Junior medical officer, assistant medical officer, associate medical officer, medical officer, senior medical officer; and

Graduate nurse, and graduate nurse (visiting duty).

Dr. E. T. Trice,

Richmond, Va., was called to Roanoke, Va., the middle of February, on account of the illness and death of his mother.

Mothers' Pensions in New York.

Mothers can give children good care more economically than can institutions. This is proved by figures in the last annual report of the New York City Board of Child Welfare. In 1923 this board cared for approximately 23,000 children and 8,500 widows in their own homes at a cost of $4,517,106. As against this, the city paid $4,032,700 to provide for 13,690 children in institutions. In other words, it cost New York $28.40 a month to care for a child in an institution and only a little over $15 to care for a child in its own mother's home.

Child Cripples.

There are about 264,000 crippled children in the United States, according to an estimate in the recently published "The Care, Cure, and Education of the Crippled Child," by the International Society for Crippled Children.

Infantile paralysis ranks first in the list of causes of crippling conditions in children, "sur-

gical" tuberculosis second, congenital deformities third, and rachitic deformities fourth.

Wanted.

Doctor at Wingina, Nelson County, Virginia. On Chesapeake and Ohio Railway. Address answers to "E. J.", care VIRGINIA MEDICAL MONTHLY. (Adv.)

Obituary

Dr. Julian A. Norfleet,

After an illness of several months, died at his home in Norfolk, Va., February 9. He was sixty years of age and had taken his diploma in medicine from the Medical College of Virginia in 1886. For thirty years, Dr. Norfleet had been a successful and much loved physician in his section and was active in the public life of his community and in the work of the Norfolk County Medical Society, of which he had long been a member. He had been a member of the Medical Society of Virginia for a number of years.

The Norfolk County Medical Society held a meeting following his death and adopted the following resolutions:

Upon the death of Dr. J. A. Norfleet, of Norfolk, the Norfolk County Medical Society, in session assembled, adopted the following resolutions:

RESOLVED. That we deeply regret the death of a member with whom we have been long associated;

That in the severance of these relations he will be signally missed by us.

That we record with pride the professional standards to which he attained, and the evidences of character which in his life have been so convincing and so conclusive.

To his family, his friends, and to that wide circle of people who looked to him for professional advice and guidance, we extend our sympathy and sorrow.

WALTER B. MARTIN,
W. G. ASHBURN,
FRANK HANCOCK,
Committee.

Dr. Howard Fletcher,

Prominent physician of Northern Virginia, died at his home in Warrenton, Va., February 25. Dr. Fletcher was born in Warrenton forty-nine years ago and received his academic education at Randolph Macon College. After this he studied medicine at Johns Hopkins University, Baltimore, from which he graduated in 1900. He had been a member of the Medical Society of Virginia since 1909, was a Mason, and a member of a number of fraternal and medical organizations. At the time of his death Dr. Fletcher was president of the Medical Society of Northern Virginia, Maryland and the District of Columbia.

Dr. John F. Ragland, Jr.,

Of Petersburg, Va., died February 10, in Richmond, following a heart attack. Dr. Ragland was a native of Richmond and studied medicine at the Medical College of Virginia, from which he graduated in 1899. He joined the Medical Society of Virginia in 1904 and had since been a member. He practiced for a number of years in Chesterfield County, Virginia, and for a time represented that county in the General Assembly. During the World War, he served as a lieutenant in the Navy and was stationed for a large part of the time at the Marine Hospital in Norfolk. Following the war, Dr. Ragland took a post-graduate course in diseases of the eye, ear and throat, upon the completion of which he located in Petersburg, where he had practiced for about five years. He is survived by his wife, a daughter and a large family connection.

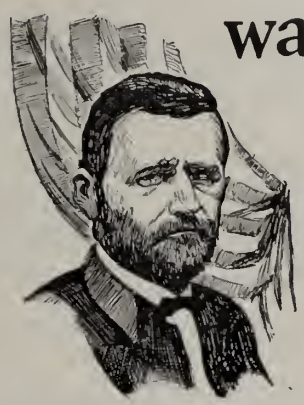
Dr. George Archer Hankins,

For a long time physician to the College of William and Mary, died at his home in Williamsburg, Va., February 27, aged seventy-nine years. Dr. Hankins studied medicine at the Medical College of Virginia, from which he graduated in 1873, and was a member of the Medical Society of Virginia until his retirement from active practice several years ago. He was a veteran of the war between the States. Dr. Hankins was for fifty years prominently identified with the development of Williamsburg and the surrounding country. He is survived by his wife and two children.

Dr. Charles James Terrell,

Of Hewlett, Va., died at the home of a daughter in Chatham, Va., February 10. He was one of the oldest members of the medical profession in this State, being about ninety years of age. He graduated from Jefferson Medical College, Philadelphia, in 1856, and, from then until his retirement from active work, with the exception of the time of the war between the States, practiced in Hanover County. At the beginning of this war, Dr. Terrell assisted in organizing the Ashland Artillery, with which he served as lieutenant for two years, when he became a surgeon with the Confederate Army until the end of the war. He was an active member of the United Confederate Veterans, being at one time surgeon-general of this order in Virginia. Dr. Terrell is survived by several children, one of them Dr. E. A. Terrell, of Frederick's Hall, Va., and by a number of grandchildren.

Since 1873---When Grant was in the White House



World-wide confidence in Smith Bonds is the result of 52 years of proven safety in first mortgage investments

7%

First Mortgage Coupon Bonds

SMITH BONDS ($1,000, $500 and $100) are described in our new booklet, "Fifty-two Years of Proven Safety."

Our Investment Savings Plan, which pays the full rate of bond interest on every partial payment, is described in the new and revised edition of our booklet, "How to Build an Independent Income."

Mail the attached coupon for these booklets today.

THE F. H. SMITH COMPANY 47-Z
Smith Building, Washington, D. C.

Please send me, without obligation, copies of your two new booklets.

Name .....

Address .....

FIFTY-TWO years ago this month Ulysses S. Grant was inaugurated for his second term as President of the United States. Two months earlier, in January 1873, The F. H. Smith Company was founded.

The half-century since then has witnessed the transformation of Washington into a great World Capital; and The F. H. Smith Company has grown to a nationally known investment institution, now serving thousands of investors throughout the world.

Smith Bonds are owned today in all the countries visited by President Grant on his historic world tour—England, France, Italy, Egypt, India, Siam, China, Japan, Cuba, Mexico; in 20 other foreign lands, and in every State in the Union.

Wherever you live, wherever the mails carry, in the United States or abroad, you can have the perfect satisfaction of Smith service and the proven safety of First Mortgage Bonds that have behind them our record of *no loss to any investor in 52 years.*

No Loss to Any Investor in 52 Years

THE F. H. SMITH CO.

Founded 1873

First Mortgage Bonds

SMITH BUILDING WASHINGTON, D.C.

HUNDREDS OF PHYSICIANS

have their outfitting accounts with us. They are all good accounts. We want yours.

Hanan Shoes

C. N. Berry & Co.
ESTABLISHED 1879
RICHMOND, VA.

Dunlap Hats

Capital $1,000,000 Surplus Earned $1,000,000

ESTABLISHED 1892

To act as Executor, Guardian and Trustee
$25,000,000
of investments held in Trust

Confidential Interviews Invited.

DOCTORS administer to the sufferings of the living and bring them comfort.

THIS BANK administers to the estates of the dead and brings to them protection and economical administration.

Let us have your will prepared without cost to you.

MERCHANTS NATIONAL BANK
RICHMOND, VIRGINIA

Capital, Surplus and Undivided Profits over $2,400,000.00

"SAFEST FOR TRUSTS"